The Platform for Collaboration on Tax

A Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses

Including a supplementary report on

Addressing the Information Gaps on Prices of Minerals Sold in an Intermediate Form

International Monetary Fund (IMF)
Organisation for Economic Co-operation and Development (OECD)
United Nations (UN)
World Bank Group (WBG)

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Acronyms

AEOI	Automatic Exchange of Information
ATAF	African Tax Administration Forum
BEPS	Base Erosion and Profit Shifting
CIAT	Inter-American Center of Tax Administrations
CIT	Corporate Income Tax
DRM	Domestic resource mobilisation
DSO	Direct Shipping Ore
DWG	G20 Development Working Group
IMF	International Monetary Fund
MNE	Multinational Enterprise
OECD	Organisation for Economic Co-operation and Development
PCT	Platform for Collaboration on Tax
RC	Refining Charge
RTO	Regional Tax Organisation
SDGs	Sustainable Development Goals
TC	Treatment Charge
TP	Transfer Pricing
TIWB	Tax Inspectors Without Borders
UN	United Nations
WCA	Working Capital Adjustments
WBG	World Bank Group

A Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses

EXECUTIVE SUMMARY

A common concern of developing economies in the implementation of transfer pricing regimes relates to difficulties in accessing information on "comparables": data on transactions between independent parties used in the application of the arm's length principle. In response to this challenge and under a mandate from the Development Working Group of the G20, the Platform for Collaboration on Tax (PCT) – a joint initiative of the IMF, OECD, UN, and World Bank Group – has developed a toolkit to assist tax administrations of developing countries.

Available statistics and academic research on the availability of information on comparables corroborate the difficulties reported by many developing countries. Often, the information relevant to a jurisdiction can only be accessed through the purchase of a licence from database providers. However, even putting aside the financial cost of acquiring access to such databases, challenges for developing country tax administrations often remain, particularly in cases where little relevant information relating to a specific jurisdiction or even region exists. Where the information does exist, it may exhibit differences compared to the transactions under review. Typically, in such cases, transfer pricing practitioners need to consider using imperfect data, including the use of data from foreign markets. However, the effectiveness of such approaches has not been studied sufficiently to enable definitive conclusions to be drawn about when they are reliable or how any adjustments to account for such differences should be applied.

Responses Considered in the Toolkit

The toolkit first puts the search for comparables information into context, providing an outline of the comparability analysis process, and cross-references to more detailed guidance material where needed. In particular, the importance of accurately delineating the transaction under review is emphasised. This essential first step drives the selection of the most appropriate transfer pricing method and the subsequent criteria for the search for comparables. A range of practical examples and case studies are provided to illustrate these principles, including in commodities and minerals given their importance to many developing countries. The toolkit also includes practical tools to assist with delineating the transaction and undertaking a search for potential comparables. A number of common approaches to adjusting imperfect comparables are described, together with several country practices.

The toolkit sets out a number of policy options that developing economies could consider, together with some additional initiatives that could be taken on by countries, or international or regional organisations to more systematically mitigate the problems caused by poor availability of or access to relevant data. In particular:

- Use of carefully constructed safe harbours aligned with the arm's length principle. Safe harbours have the potential to provide increased certainty and simplicity for business and tax administrations alike. The toolkit discusses options in the design of safe harbours which should help to minimise potential down-sides. These design options include allowing taxpayers to opt-out of the safe harbour in certain cases; ensuring that transactions covered by a safe harbour are within the scope of treaties on the avoidance of double taxation; and the possibility for jurisdictions to agree the terms of safe harbour regimes bilaterally or multilaterally so as to prevent both double taxation and less than single taxation.

- Use of data available to tax administrations to establish arm's length safe harbour regimes. The toolkit suggests that countries, together with regional or international organisations, could explore the possibility of collating information already in the hands of tax administrations to inform arm's length safe harbour margins. Such information, not being in the public domain, is typically not used by tax administrations as comparables data, but could be presented publicly in an aggregated format that ensures taxpayer confidentiality while providing transparency of process.

- A framework for the selection and application of the most appropriate method. The selection of the most appropriate method, based in large measure on the accurate delineation of the transaction provides the fundamental basis of any subsequent search for comparables data and will significantly impact on the outcomes of the analysis. The toolkit suggests:

    - For transactions which comprise the sale of commodities, in cases where a Comparable Uncontrolled Price method is appropriate, the arm's length price may be determined by reference to a quoted price (e.g. on a commodities exchange), where available. Given the importance of the natural resources sectors to many developing countries, further work on the efficient and effective application of such approaches based on quoted prices is recommended.

    - For transactions in which the analysis concludes that a one-sided method is most appropriate, an evaluation of the economically relevant characteristics of the transaction will help to make the best use of any available comparables information (which may include information on imperfect comparables such as those from foreign markets) to determine appropriate arm's length outcomes. Carefully constructed safe harbours could be particularly useful for common types of transaction where comparables information is unavailable or unreliable.

    - For transactions in which the analysis concludes that a profit split approach is most appropriate to the tested transaction, direct benchmarking data may not be required.

- Use of anti-avoidance rules where appropriate. Where there is a significant and systemic risk of base erosion or profit shifting due to transfer pricing, and data is not available, or capacity is insufficient to effectively apply one of the above, anti-avoidance approaches could be considered.

The toolkit, in addressing the context of comparables searches and broader policy options available to countries, goes beyond a narrow examination of how to deal with a lack of local comparables data. Its aim is thus to help ensure greater practical implementation of transfer pricing regimes that apply the arm's length principle, in accordance with the realities faced by many developing countries, including limited information availability and administrative capacity. The toolkit identifies a number of areas for further work and acknowledges that political support will be needed to more systematically address a number of these issues.

PART I: INTRODUCTION - ADDRESSING THE DIFFICULTIES IN PERFORMING COMPARABILITY ANALYSES

A transfer price is a price employed in a transaction between associated enterprises. When independent enterprises transact with one another, market forces determine the pricing of those transactions. This may not always be the case in transactions between associated enterprises.

Transfer pricing is a legitimate and necessary feature of the commercial activities of multinational enterprises. However, where the transfer prices between the associated enterprises do not accord with internationally applicable norms,[1] they can distort the allocation of profit among the countries in which a multinational enterprise operates. When transfer pricing artificially shifts profits out of a country it, first and foremost, denies the country essential tax revenue. Such profit shifting can also have much wider implications: tax avoidance by high-profile corporate taxpayers will be perceived as "unfair" by citizens and may undermine the legitimacy and credibility of the wider tax system, thus discouraging compliance by all taxpayers. These are issues faced by developing and developed countries alike.

Many countries have addressed the tax risks created by transfer pricing by introducing domestic tax rules based on the "arm's length principle." Most double tax treaties also incorporate the arm's length principle as the basis for allocating profits (and thus taxes) between associated enterprises. The arm's length principle provides broad parity of tax treatment for transactions between associated enterprises and those between independent enterprises. Implementation of the principle is intended to create equality of treatment between members of a group of companies (which may gain tax advantages through non-arm's length transfer pricing) and independent enterprises. It also provides an objective standard that attempts to replicate market results. By helping to level the playing field, and by virtue of the fact that it represents an international standard, the arm's length principle helps reduce distortions to international trade and investment.

Broadly, country transfer pricing rules aim to ensure that the tax liabilities of associated enterprises in the countries in which they operate are not distorted by the fact that they are related. Fundamentally, they do this by requiring such enterprises to report a measure of taxable profit that would be expected if the associated enterprises adopted prices (and other conditions) that are consistent with those that would be seen between independent enterprises in comparable circumstances. Transfer pricing rules also typically provide a tax administration with the authority to make adjustments to taxable profit where taxpayers do not adopt arm's length conditions in their transactions with associated enterprises. In order to establish such prices (and other conditions), it is necessary to compare the conditions of transactions that exist between the associated enterprises with those that do or would exist between independent parties in comparable circumstances. It is necessary to carry out this comparability analysis whenever the arm's length principle is implemented.

[1] See paragraph B.1.1.7 of the *UN Practical Manual on Transfer Pricing* (2017)

Comparability analyses are an important element in the implementation of the arm's length principle, requiring a comparison of the conditions in transactions between associated parties ("controlled transactions") with the conditions in comparable transactions between independent parties ("comparable uncontrolled transactions" or "comparables"). It is important to emphasise that comparability analyses are not always primarily focused on the actual price of the transaction. In some instances, transfer pricing rules operate to consider whether a transaction has occurred at all, or has occurred in a way that is substantively different from that which is described in contracts or documentation; in ways that are substantively different from those which would occur at arm's length; or are not commercially rational. It is important to also stress that comparability analyses are not always based directly on prices found in the market. More often, a comparability analysis utilises data on profit margins. In some cases, the analysis considers economic or commercial factors to measure the relative contributions of value by the parties in order to inform a profit split.[2]

Many tax administrators report uncertainties and difficulties in conducting comparability analyses. A key issue raised by developing countries, in particular, is the scarcity in some parts of the world of the financial data necessary to carry out a comparability analysis. Such issues can affect taxpayers and tax administrations alike. Taxpayers may face uncertainties about how to comply with transfer pricing rules and incur unnecessary compliance costs in doing so. Tax administrations may face difficulties in implementing their rules, which, in turn, will impact their tax revenues.

In many developing countries, challenges to obtaining information are not limited to specific, highly complex transactions: they may exist in all industries. For many resource-rich developing countries, a lack of data on the pricing of certain commodities is of particular concern.

Unitary taxation or formulary apportionment[3] approaches are sometimes proposed as alternatives to the arm's length principle, which need not rely on comparables. While the merits and disadvantages of such approaches can be debated, including whether or not they would benefit developing countries,[4] they are unlikely to be implemented at global level in the foreseeable future.[5] This toolkit, therefore, focuses on practical measures that can be implemented in the short to medium term. The issue of a lack of comparable data for transfer pricing analyses was highlighted in the *Report to G20 Development Working Group on the Impact of BEPS in Low Income Countries*,[6] which was the catalyst for this toolkit.

This toolkit attempts to address some of the challenges associated with difficulties in accessing comparables data. While 'perfect' or ideal comparables may only rarely be available, commonly the data that is available will still allow a reasonably reliable analysis to be performed and a satisfactory approximation of an arm's length outcome to be determined. **Part II** of this toolkit thus focuses on making the best use of available data. It discusses the sources of data and

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[2] See Section 5 of Part III of this Toolkit

[3] See paragraph B.1.4.14 of the UN Practical Manual on Transfer Pricing (2017) or Section C of Chapter I of the *OECD Transfer Pricing Guidelines* (2017)

[4] See the discussion of Formula Apportionment in IMF Policy Paper, (2014) *Spillovers in International Corporate Taxation.*

[5] The European Commission has developed proposals for a 'common consolidated corporate tax base (CCCTB)' which incorporates an apportionment formula for the purposes of allocating taxing rights between member states. The original CCCTB was tabled in 2011 then relaunched in 2016.

[6] OECD, July 2014. *Part 1 of a report to G20 development working group on the impact of BEPS in low income countries.* www.oecd.org/tax/part-1-of-report-to-g20-dwg-on-the-impact-of-beps-in-low-income-countries.pdf.

how the use of available data may be optimised through widening the criteria for data-selection and the use of comparability adjustments. It also stresses that the selection of the most appropriate transfer pricing method, on the basis of a detailed factual analysis, is central to the application of the arm's length principle, and in many cases, is likely to have a greater impact on the outcome than the accuracy of the data used in the method's application. This Part is structured according to the general steps to follow in the conduct of a comparability analysis. It provides practical tools such as commonly used profit level indicators (PLIs) for particular types of businesses, a sample functional analysis questionnaire, and a step-by-step template which could be used to screen for potential comparables, as well as information to help tax administrations to critically analyse comparability studies presented by taxpayers.

In other cases, it may be appropriate to consider other ways of determining arm's length outcomes that do not rely (directly) on comparables. **Part III** focuses on issues that arise, and solutions that may be available, where adequate data on transactions between independent parties are not available, including the potential for developing safe harbours or prescriptive approaches. It also explores how data in the possession of tax administrations, typically derived from tax returns, may be used to identify arm's length results in a way that preserves confidentiality. Such data may have a part to play in setting safe harbour margins. Part III also includes a discussion of some of the policy considerations with regard to such approaches, as well as outlining a number of country practices, and providing practical tools in the form of sample legislation or regulations which could be used to implement such approaches. Given the nature of the problem, the discussions contained in Part III may be of particular relevance to policy makers, while Part II, in contrast, may be more relevant to transfer pricing practitioners.

The issue of difficulties in accessing comparables data is complex and needs to be approached from several practical as well as policy angles, and it is recognised that this Toolkit does not provide a comprehensive solution. Consequently, the final part, Part IV, sets out areas where further work is planned, and summarises a number of conclusions.

Box 1. Reference to Commodities/Extractive Industry Issues

This toolkit addresses issues of comparability for transfer pricing, generally. However, in recognition of the importance of the extractive industries[7] and other commodities sectors to the economies of many developing countries, a special emphasis has been placed on clarifying issues that can be critical in these sectors. While the issues and tools set out in the toolkit will be generally applicable regardless of the industry sector involved, the following sections are particularly relevant to the extractive industries or other commodities sectors:

- Part II, Section 2.4.2 on using quoted prices to determine an arm's length price for a commodity[8]
- Part II, Section 3.3.1 on accessible price databases and publications
- Part II, Section 5.4.1 on (examples of) adjustments for physical characteristics
- Part II, Section 5.4.3 on (examples of) netback approaches
- Part III, Section 4.3 on suggestions of prescriptive rules
- Supplementary report on mineral product pricing (gold, thermal coal, iron ore, copper)

While some of the illustrations included in this toolkit conclude that the local associated enterprise conducts 'routine' activities and thus should be remunerated by reference to comparables which have relatively low (and stable) returns, this is far from a presumption and each case must be analysed on its own facts. Indeed, the Toolkit emphasises the importance of determining the most appropriate method according to the facts of the relevant transaction, with the result that the local associated enterprise may or may not be determined to be due all or part of the entrepreneurial profit or loss. As an example, see Case Study 1 which concludes that the local enterprise in fact assumes all the economically significant risks associated with the transactions. In this case, comparables need to be sought to benchmark an arm's length return for the foreign enterprise, with the local entity being entitled to the remaining profits.

It should also be noted that this toolkit aims to provide practical tools for transfer pricing analyses in situations where comparables data is scarce: it is not a substitute for more complete guidance on the application of the arm's length principle such as that contained in the OECD Transfer Pricing Guidelines or the UN Practical Manual on Transfer Pricing.

NOTE: All illustrations and case studies used in this toolkit are for illustrative purposes only and are necessarily presented with limited facts. As each case must be considered based on its own facts, the case studies do not have applicability beyond the purpose of illustrating several topics related to the toolkit and should not be used by taxpayers or tax administrations to interpret superficially similar cases.

[7] Other sources of information on taxation and the extractives industries include Philip Daniel (ed.) et al (2016) *International Taxation and the Extractive Industries*

[8] "Commodity" strictly refers to products that have a uniform set of characteristics and have a well-established international price (refined gold, for example). However, in this toolkit commodity is used in a more general way to refer to agricultural, mineral, and energy products that may not conform to the strict definition.

PART II: ISSUES ARISING WHEN CONDUCTING A COMPARABILITY ANALYSIS

1. Initial Considerations

A fundamental feature of transfer pricing rules is to distinguish between "controlled transactions" and "uncontrolled transactions". The former refers to transactions between two enterprises that are associated—in most instances this means that they are members of the same group of companies. The latter refers to transactions between independent enterprises. Such transactions may involve the sale or transfer of goods (including agricultural commodities, mineral products or manufactured goods), or anything else of value, such as physical and financial assets, intangibles[9] (including rights), services or rights to services, etc.

The conditions of a controlled transaction are established, or tested, by reference to the conditions observed in comparable uncontrolled transactions. In order to apply the arm's length principle to controlled transactions it is necessary to thoroughly understand the commercial or financial relations between the associated enterprises and, specifically, the features of the controlled transaction(s) to be compared. The process of doing this is referred to below as "accurately delineating" the controlled transaction. Once this is understood, it will then be necessary to start the process of selecting the most appropriate transfer pricing method and identifying one or more potential uncontrolled transactions that may be considered comparable.

An uncontrolled transaction is comparable to a controlled transaction when there are no differences between them that could materially affect the pricing being examined; or when such differences exist, if reasonably accurate comparability adjustments are made in order to eliminate the effects of such differences.[10]

The OECD Transfer Pricing Guidelines and the UN Practical Manual on Transfer Pricing each set out a framework of five economically relevant characteristics or comparability factors to be kept in mind when considering whether a controlled transaction is comparable to an uncontrolled transaction. These are:

- The contractual terms of the transaction;
- The functions performed by each of the parties to the transaction, taking into account assets used and risks assumed, including how those functions relate to the wider generation of value by the multinational enterprise (MNE) group to which the parties belong, the circumstances surrounding the transaction, and industry practices;
- The characteristics of the property transferred or services provided;

[9] The *OECD Transfer Pricing Guidelines* (2017) define an intangible for transfer pricing purposes as something which is not a physical asset or a financial asset, which is capable of being owned or controlled for use in commercial activities, and whose use or transfer would be compensated had it occurred between independent parties in comparable circumstances (see Section A of Chapter VI). This definition would include *inter alia,* patents; know-how and trade secrets; trademarks and trade names; and rights under contracts and government licences (including licences or concessions to extract minerals or hydrocarbons). .

[10] Comparability adjustments are discussed in Section 5.

- The economic circumstances of the parties and of the market in which the parties operate; and

- The business strategies pursued by the parties.[11]

The relative importance of these factors to each case will depend on the circumstances of that case. Further information on what is meant by each of these economically relevant characteristics can be found in Section D.1 of Chapter I of the *OECD Transfer Pricing Guidelines*, and in Section B.2 of the *UN Practical Manual on Transfer Pricing*.

2. Comparability Analysis — Delineating the Transaction

This section outlines a process aimed at establishing the economically relevant circumstances and characteristics of a transaction undertaken by a taxpayer with an associated enterprise, and which is the subject of a transfer pricing comparability analysis.[12]

Summary of the typical process for performing a comparability analysis

	Part	OECD Guidelines Reference	UN Practical Manual Reference
Broad-based analysis of the taxpayer's circumstances	2.1	Steps 1 and 2 in Chapter III	Paragraph B.2.3.1.
Accurate delineation of the transaction	2.2	Step 3 in Chapter III	Paragraph B.2.3.1.4
Initial review of possible sources of comparable s information	2.3	Steps 4 and 5 in Chapter III	Paragraph B.2.3.4.
Select the most appropriate transfer pricing method	2.4	Step 6 in Chapter III	Paragraph B.2.3.6.
Identification of potential comparables	3.4	Step 7 in Chapter III	Paragraph B.2.3.4
Comparability adjustments (where appropriate)	5	Step 8 in Chapter III	Paragraph B.2.3.5
Interpretation	6	Step 9 in Chapter III	Paragraph B.2.3.7.

[11] Paragraph 1.36 of *OECD Transfer Pricing Guidelines* (2017). Also *UN Practical Manual on Transfer Pricing* (2017), paragraph B.2.1.6.

[12] Paragraph 3.4 of *OECD Transfer Pricing Guidelines* (2017) presents a typical process to follow when performing a comparability analysis and clarifies "*this process is considered an accepted good practice but it is not a compulsory one, and any other search process leading to the identification of reliable comparables may be acceptable as reliability of the outcome is more important than process (i.e. going through the process does not provide any guarantee that the outcome will be arm's length, and not going through the process does not imply that the outcome will not be arm's length).*

2.1 Broad-based analysis of the taxpayer's circumstances

(Step 2[13] of typical process outlined in Chapter III of the *OECD Transfer Pricing Guidelines*; Paragraph 5.3.1 of the *UN Practical Manual on Transfer Pricing*)

Undertaking a broad-based analysis of the taxpayer's circumstances may include an analysis of the industry, competition, economic and regulatory factors, and other elements that may affect the taxpayer and its environment.[14] See Part A of Examples 1, 2, and 3.

2.2 Accurate delineation of the actual controlled transaction—focus on the economically significant characteristics

(Step 3 of the typical process outlined in Chapter III of the *OECD Transfer Pricing Guidelines*; Paragraphs B.2.3.2.and B.2.3.3. of the *UN Practical Manual on Transfer Pricing*)

After gathering background and contextual information, the next step is to accurately delineate the controlled transaction. The five economically relevant characteristics or comparability factors described above are normally considered in the analysis as they allow for the accurate identification of the features of a controlled transaction that will be the starting point for the comparability analysis.

It is important to verify any contractual terms by reference to the conduct of the parties. While a transfer pricing analysis will typically start from the related party contracts, where the substance and the form of a transaction are misaligned or inconsistent, the substance will take priority to the extent the two are misaligned.[15] Furthermore, the written agreements alone generally do not provide sufficient information, particularly in terms of identifying the economically significant activities and responsibilities undertaken, the assets used or contributed and the risks assumed in order to accurately delineate the transaction. On the other hand, in some cases, the contract terms or other written agreements may be the only indication of certain aspects of a transaction. To the extent that related party contracts do not fully delineate the transaction, or they conflict with the actual conduct of the parties, the latter will prevail.

A key element of a comparability analysis is the functional analysis,[16] which is the foundation of a transfer pricing analysis, providing information to identify all important features of a controlled transaction, including critical functions, key assets utilised, and the assumption of economically significant risks. To provide an illustration of the type of information that may be considered in a functional analysis, Appendix 1 provides an example of a functional analysis questionnaire, although it should be borne in mine that such questions will always need to be tailored to the facts and circumstances of specific cases. A taxpayer's transfer pricing documentation, such as its Local File and Master File, should be made available as it generally provides a starting point for the functional analysis.[17]

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[13] Step 1 involves simply identifying the relevant years to be examined.

[14] Paragraph 3.7 of the *OECD Transfer Pricing Guidelines* (2017). The Masterfile may be of particular help in this regard. See Chapter V of the *OECD Transfer Pricing Guidelines* (2017).

[15] Unless the transaction itself is not commercially rational. See Section D.2 of Chapter I of the *OECD Transfer Pricing Guidelines* (2017).

[16] See Section D.1.2 of Chapter I of the *OECD Transfer Pricing Guidelines* (2017). The taxpayer's functional analysis should also be included as part of the local file. See Annex II to Chapter V of the *OECD Transfer Pricing Guidelines* (2017).

[17] See Chapter V of the *OECD Transfer Pricing Guidelines* (2017) or the C.2.2. of the 2017 UN Practical Manual on Transfer Pricing For Developing Countries for more information about transfer pricing documentation, including the suggested contents of the Local File and Master File.

The OECD Transfer Pricing Guidelines consider the assumption of risks[18] to be a crucial part of the functional analysis and the process of delineating a transaction. This is an important aspect to consider as the assumption of greater risks carries the expectation of greater profits. Any contractual assumption of risk must be borne out by the conduct of the parties and in the substance of the transaction. Therefore, in the context of the functional analysis, as set out in the OECD Transfer Pricing Guidelines (at paragraph 1.60) a detailed analysis of risks is proposed out according to the following steps:

1. The identification of specific, economically significant risks;
2. The determination of how the specific, economically significant risks have been contractually assumed;
3. Gather information on the conduct of the parties, i.e. how the associated enterprises that are parties to the transaction operate in relation to assumption and management of the specific, economically significant risks, and, in particular, which enterprise or enterprises perform control[19] functions and risk mitigation functions; encounter upside or downside consequences of risk outcomes (e.g. greater or lower than anticipated revenues or costs); and have the financial capacity to assume the risk);[20]
4. (i). The determination of whether the contractual assumption of risk is consistent with the conduct of the associated enterprises (i.e. whether the associated enterprises follow the contractual terms);
4. (ii). The determination of whether the party assuming the risk [as determined in 4(i)] exercises control over the risk and has the financial capacity to assume the risk based on the information gathered in Step 3. If so, this party is regarded as assuming the risk and Step 5 need not be considered;
5. If the party assuming risk does not control the risk or does not have the financial capacity to assume the risk, allocate the risk to the party that does control it and has the financial capacity to assume it.

The accurately delineated transaction should be priced taking into account the financial consequences of risk assumption, as appropriately reallocated (if necessary), and appropriately compensating risk management functions, as understood in OECD Transfer Pricing Guidelines.[21]
See Part B of case studies 1, 1A, 1B, 2, and 3.

Other economically relevant characteristics, such as those relating to the property or services transferred and the economic circumstances of the parties and of the market in which the parties operate should also be considered in terms of their possible impact on the reliability of potential comparables. For example, if the transfer pricing analysis shows that the transaction is for the sale of a product or services which have a truly global market,[22] the

[18] See paragraph 1.71 of the *OECD Transfer Pricing Guidelines* (2017) which defines risk as the effect of uncertainty on the objectives of the business. The 2017 UN Practical Manual on Transfer Pricing adopts a similar approach regarding the relevance and analysis of risk. See paragraph B.2.3.2.24.

[19] See paragraph 1.65 of the *OECD Transfer Pricing Guidelines* (2017) or the Section B.2.3.2.35. of the 2017 UN Practical Manual on Transfer Pricing For Developing Countries

[20] See paragraph 1.64 the *OECD Transfer Pricing Guidelines* (2017) or the Section B.2.3.2.38. of the 2017 UN Practical Manual on Transfer Pricing For Developing Countries

[21] See paragraphs 1.61-1.63 and 1.105 of the *OECD Transfer Pricing Guidelines* (2017)

[22] A global market is one in which prices of goods or services, or profits of firms, tend to equalise globally, generally as a result of a lack of barriers to trade / investment / capital. Examples include certain commodities which are widely traded at a global level, such as crude oil and gold. In the case of physical products, while the existence of a global market means the price of the product is equalised globally, the price of a transaction may still need to be adjusted, e.g. for transportation costs.

geographic location of potential comparables may not be a significant factor to be taken into account. See Section 3.4.

The international standard on transfer pricing allows, in specific circumstances, for a transaction to be disregarded. The effect of disregarding a transaction is that the taxable profit of the enterprise involved is adjusted to what it would have been if the transaction had not occurred at all, or, if appropriate, adjusted to what it would have been if the transaction had been structured in a commercially rational manner.[23]

Once a transaction has been accurately delineated, the process of determining the most appropriate method and identifying relevant comparables can commence. The accurately delineated transaction will drive the resultant selection of the most appropriate method and determine the parameters of the search for comparables. See Part B of case studies 1, 1A, 1B, 2, and 3. See Appendix 2 for characterisations based on typical business models.

[23] See paragraph 1.122 of the *OECD Transfer Pricing Guidelines* (2017)

Box 2: Sugar Producer

This simplified example illustrates the general objective of a comparability analysis.

Company A produces raw cane sugar in Country A and sells it in bulk to associated enterprises only. Raw cane sugar is a ***commodity*** product. Terms and conditions of the controlled transaction have been agreed upon (type and quality of sugar, quantity, commercial and contractual rights, and obligations, etc.), and a transfer price of USD 0.08 per pound of sugar has been determined by Company A in its transfer pricing analysis. To test whether the transfer price of USD 0.08 complies with the arm's length principle, a comparability analysis needs to be performed: a broad-based analysis of Company A's circumstances needs to be undertaken and the transaction accurately delineated.

The accurate delineation of the transaction showed that Company A purchases sugar cane from local producers and processes it into raw cane sugar. That sugar is then sold to the associated enterprise that packages, sells and distributes it to third party wholesalers and retailers, under a well-known trademark. The accurate delineation concludes that, at arm's length, the associated enterprise would have the right to a return from the exploitation of that trademark. The analysis shows also that Company A carries out the functions (as well as uses assets and assumes risks) that are typical of independent sugar cane processors, and that the associated enterprise conducts functions (as well as uses assets and assumes risks) that are typical of an independent enterprise that packages, distributes and sells sugar.

Additionally, in this case, a market price of the same type of sugar sold between independent parties under comparable conditions is available. That is, the market price is derived from the sale of comparable products between independent parties carrying out the same split of functions as those between Company A and its associated enterprises.

On the basis of the accurate delineation of the transaction and the availability of information on comparable transactions, the taxpayer concluded that a CUP method (see 2.4.1.) is the most appropriate method.

In general terms, comparable products (ideally, identical sugar) need to be identified from available sources of information, and their comparability tested based on the economically relevant characteristics of the controlled transaction, which would have to be replicated as closely as possible by the uncontrolled transactions for which market prices are available. Then, the most appropriate transfer pricing method is to be selected (in this case CUP method). Having identified the reliable comparable transactions, and having determined their market prices, these are compared to the transfer price of USD 0.08 per pound to determine if the latter complies with the arm's length principle.

Many income tax systems are based on self-assessment, under which the taxpayer chooses the transfer pricing method. Tax authorities must be alert to the possibility of opportunistic behaviour in this choice. They need, for example, to scrutinise the presumed risk assumptions presented by the taxpayer and delineate the transaction according to the actual facts and circumstances.

2.3 Initial review of possible sources of internal comparables and sources of information on external comparables[24]

(Steps 4 and 5 of the typical process in Chapter III of the *OECD Transfer Pricing Guidelines*, Paragraph 5.3.4 of the *UN Practical Manual on Transfer Pricing*)

This step involves scanning the environment for potential comparables. While the characteristics of the transaction are of primary importance in selecting the transfer pricing method, the availability of comparables information must also be considered. This step therefore helps to determine the feasibility of potential transfer pricing methods ahead of the closer analysis described below.

2.4 Select the most appropriate transfer pricing method

(Step 6 of the typical process in Chapter III of the *OECD Transfer Pricing Guidelines*, Paragraph 5.3.6 of the *UN Practical Manual on Transfer Pricing*)

2.4.1 Overview of the transfer pricing methods

This step involves identifying the most reliable transfer pricing method for establishing, or testing, arm's length conditions. While the selection of the most appropriate method must first depend on the delineation of the transaction to be tested, as noted above, in order to be practicable, it must also give regard to the availability of potential comparables that would be needed to apply the selected method. As indicated in the *OECD Transfer Pricing Guidelines,* when it is not possible to find information on comparable transactions and/or make reasonably accurate adjustments, taxpayers might have to select another transfer pricing method.[25]

The *OECD Transfer Pricing Guidelines* and the *UN Practical Manual on Transfer Pricing* each describe five methods for applying the arm's length principle. Detailed guidance on each of the five methods can be found in these documents. The five methods are:

(a) **Comparable Uncontrolled Price (CUP) Method**. The CUP method consists of comparing the price charged for property or services transferred in a controlled transaction to the price charged for property or services transferred in a comparable uncontrolled transaction.

The CUP method is most often appropriate:

- where an internal comparable is available;

[24] Internal comparables are comparable transactions between one party to the controlled transaction and an independent party. External comparables are comparable transactions between two independent enterprises, neither of which is a party to the controlled transaction.

[25] See paragraph 3.5 of the *OECD Transfer Pricing Guidelines* (2017).

- for commodities, particularly those with deep, liquid markets, which tend to equalise price differences based on the circumstances. In such cases, pricing data from commodities exchanges may be available, but adjustments may be necessary;[26]

- for financial transactions (for example, interest rates for loans, guarantee fees); and

- for the licensing of some intangibles, particularly where the license is not unique and valuable, to benchmark a royalty rate and comparable market data are available.

(b) **Resale Price Method**. The resale price method consists of comparing the resale margin that a purchaser of property or services in a controlled transaction earns from reselling that property or services in an uncontrolled transaction with the resale margin that is earned in comparable uncontrolled purchase and resale transactions.

- The resale price method is most often associated with sales and distribution functions that do not involve the assumption of significant risk or the exploitation of unique and valuable intangibles (in practice, this method is most often used when there are internal comparables available, perhaps for a different product, but involving comparable functions, assets, and risks).[27]

- Other resellers with limited value-adding functions where external comparables in the same industry and geographic market are available.

Since the resale price method requires consistency between controlled and comparable uncontrolled transactions in the determination of gross margins, while accounting standards often allow for flexibility in accounting for certain items e.g. as either cost of goods sold or operating expenses, in practice it is seldom used unless reliable internal comparables are available.[28]

(c) **Cost Plus Method**. The cost plus method consists of comparing the mark-up on those costs directly and indirectly incurred in the supply of property or services in a controlled transaction (but generally excluding overheads) with the mark-up on those costs directly and indirectly incurred in the supply of property or services in a comparable uncontrolled transaction. In an application of the cost plus method, the determination of the appropriate cost base will often be of greater importance than the amount of the mark-up, particularly where the activities concerned are considered to be relatively low value-added.[29]

The cost plus method is most often associated with manufacturers and service providers that do not assume significant risk or exploit unique and valuable intangibles (for example, contract

[26] See paragraph 2.21 of *OECD Transfer Pricing Guidelines* (2017) or Section B.3.4.3.1.4 of the *UN Practical Manual on Transfer Pricing* (2017).

[27] See Section 3.2 on internal comparables.

[28] For example, items such as marketing rebates may be accounted for as either marketing expenses (an operating expense) or sales discounts. For these reasons, the resale price and cost plus methods are most reliable when they use an internal comparable. Using these methods with external comparables from a different industry or from a different geographic market is likely to be problematic.

[29] To illustrate: if an arm's length mark-up on costs determined through the comparability analysis is 5%, and the cost base is determined to be 600, the total transfer price will be calculated as 600 * 1.05 = 630. Thus the cost base accounts for around 95.2% of the total transfer price (600/630), and the mark-up only 4.8% (30/630).

manufacturers). In practice, this method is most often used when there are internal comparables available, perhaps for a different product, but involving comparable functions, assets, and risks.[30]

Since the Cost Plus method is also applied at a gross profit level, the same cautions about reliable application as noted above in the section on Resale Price method apply to the Cost Plus method.

(d) **Transactional Net Margin Method (TNMM)**. The TNMM consists of comparing the net profit margin relative to an appropriate base (PLI; for example, costs, sales, assets) that an enterprise achieves in a controlled transaction with the net profit margin relative to the same base achieved in comparable uncontrolled transactions. This method is similar to the cost plus and resale price methods, but is applied at a net profit margin level, rather than a gross profit margin level. Most typically, the net profit margin used is an operating profit or Earnings Before Interest and Tax (EBIT); however other measures of net profit could be appropriate depending on the case.

The TNMM, like the cost plus and resale price methods, is a one-sided method whereby the results of only one party to the transaction (the "tested party"[31]) are benchmarked, and the other party retains all the residual profits (or indeed losses). It is therefore suitable where the tested party has relatively routine (i.e. benchmarkable) functions, assets, and risks.[32]

It should be noted that the TNMM can be applied with a variety of net margins (PLIs). The PLI selected when using a TNMM should be one which reflects the core value-adding activities (and hence profitability in the open market) of the tested party, as determined through the accurate delineation of the transaction, and should be capable of reliable measurement.[33] For instance, it might be most appropriate to remunerate a distributor or reseller using a sales-based PLI—since there is normally a strong correlation in the market between the level of sales and an independent distributor's profitability, and moreover, the sales figure is generally quite consistently measured under accounting standards for such entities, while a service provider might be most appropriately served with a cost-based PLI where a strong correlation between the profitability of an independent service provider and its costs would be expected.

[30] See Section 3.2 on internal comparables.

[31] See paragraphs 3.18-3.19 of the *OECD Transfer Pricing Guidelines* (2017) or Section B.2.3.3 of the *UN Practical Manual on Transfer Pricing* (2017) for a discussion on the choice of the tested party. Broadly, because the effect of the application of a one-sided method is that the other party is allocated all residual profits (or losses) from the transaction, the tested party will generally be the one that has the less complex functions, taking into account its assets used and risks assumed.

[32] See Part III, Section B.1 of Chapter II of the *OECD Transfer Pricing Guidelines* (2017) or paragraph B.3.3.2 of the *UN Practical Manual on Transfer Pricing for Developing Countries* (2017)

[33] As was noted in the discussion above on the Cost Plus and Resale Price methods, accounting standards often allow for flexibility in the classification of certain amounts, which can then make comparisons between entities less reliable. In selecting an appropriate PLI, therefore, the reliability and measurement consistency of the indicator should be taken into account. Similarly, the PLI should not be based on a measure which is itself, not at arm's length.

Typical PLIs used include:

- Return on Sales (ROS) for distributors/resellers of tangible products where no unique and valuable contributions are made by the tested party;

- Return on Assets (ROA) and Return on Capital Employed (ROCE) for asset-intensive industries, such as manufacturing (where no unique and valuable contributions are made by the tested party). A return on assets basis may also be useful in cases where assets are a key profit driver but other potential PLIs are not available or cannot be reliably applied, e.g., for a manufacturer that both purchases raw materials and sells finished goods to related parties, thus making unreliable a transfer pricing analysis based on costs or revenue (since both figures represent its related party transactions).

- Return on Costs (ROC), in practice often also called a (full) cost plus (not to be confused with the Cost Plus Method, which is applied on a gross profit basis) for service providers, including toll manufacturers and contract R&D;

- Berry ratio[34] for limited risk intermediary enterprises with no unique or valuable intangibles, i.e. where the tested party buys from and sells to associates (for example, sales facilitation services).

Other PLIs can also be applied.

(e) **Transactional Profit Split Method**. The transactional profit split method consists of allocating to each associated enterprise participating in a controlled transaction the portion of common profit (or loss) derived from such a transaction that an independent enterprise would expect to earn from engaging in a comparable uncontrolled transaction. Unlike the one-sided methods (cost plus, resale price, TNMM), which operate by benchmarking an appropriate return for *one* party, a profit split method considers the appropriate split of the parties' combined profits from the transaction(s), due to each of the parties. When it is possible to determine an arm's length remuneration for some elements, such as particular functions performed by the associated enterprises in connection with the transaction using one of the approved methods described in Subparagraphs 2(a) to (d), the transactional profit split method may be applied based on the common residual profit that results once such elements are so remunerated.

A transactional profit split method may be the most appropriate method[35] where:

- the business operations of the associated enterprises are highly integrated, and/or

- both parties make unique and valuable contributions, including where both parties have a right to the returns from the exploitation of unique and valuable intangibles.[36]

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[34] A Berry ratio is a ratio of gross profit to operating expenses. See Section B.3.5 of Chapter III of the *OECD Transfer Pricing Guidelines* (2017) or paragraph B.3.3.7.8 of the *UN Practical Manual on Transfer Pricing* (2017).

[35] Note that further guidance on the transactional profit split method is being considered and may be incorporated into future editions of the *OECD Transfer Pricing Guidelines*. See the OECD (2015), *Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10 - 2015 Final Reports*, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris. The *OECD Transfer Pricing Guidelines* (2017) and the *UN Practical Manual on Transfer Pricing* (2017) contain a more complete discussion of the strengths and weaknesses of the transactional profit split method.

[36] These may include, for example, patents; know-how or trade secrets in relation to engineering or manufacturing processes; as well as trademarks, brands and other marketing intangibles.

In most cases, the transactional profit split method is applied by splitting the actual combined profits between the associated enterprises on an economically valid basis (for example, based on the relative contributions of each party).[37] As pointed out in Part III, this is a method that can be applied in the absence of comparables.

Financial indicators used in transfer pricing methodologies

Each of the methods described above employs specific financial indicators to establish, or test, arm's length conditions of a transaction between associated enterprises. In each, data on the relevant financial indicator is derived from uncontrolled transactions and applied in the method to establish or test arm's length conditions for the controlled transaction.

The relevant financial indicators are:

- For the CUP method—a price;
- For Resale Price method—a gross margin on sales;
- For Cost Plus method—a mark-up on direct and indirect costs of supply of goods or services;
- For Transactional Net Margin method—a margin of operating profit (generally before interest and taxes) as a proportion of total costs, sales revenue or value of assets employed. (Other margins related to operating profit may also be available); and
- For the Transactional Profit Split method—division of profit between the parties to the transaction.

Although the five methods have the same methodological standing, no single method is suitable in every situation. It depends firstly on the nature of the transaction, as pointed out above, but also on the availability of reliable information and the degree of comparability of uncontrolled transactions. Taking these criteria into account, it should be noted that where a CUP method and another transfer pricing method can be applied equally reliably, the CUP method is to be preferred, given that it is a more direct method.[38]

Moreover, once a method has been determined to be the most appropriate given the nature of the transaction, it should not be easily dismissed due to 'imperfect' comparables, as to do so would significantly increase the risk of a non-arm's length result. It will be important to judge the relative reliability of the available options, including the extent to which the 'imperfections' impact upon the comparison; and bearing in mind the likely imperfections that would impact upon the application of any other transfer pricing method.

2.4.2 Commodity pricing and prescriptive approaches

[37] Examples of the application of a transactional profit split method can be found in Annex II to Chapter II of the *OECD Transfer Pricing Guidelines* (2017) and at paragraph B.3.3.18 of the *UN Practical Manual on Transfer Pricing* (2017).

[38] See paragraph 2.3 of *OECD Transfer Pricing Guidelines (2017).*

Some countries have opted to prescribe an approach to the pricing of certain transactions, notably commodities. There is a variety of these kinds of approaches used in different countries. They are frequently referred to as "sixth method" approaches.

There are numerous versions of the sixth method, but broadly, the approaches rely on quoted prices from commodities markets to price the transaction, and in this respect, they may resemble a CUP method.[39] Most versions of the "sixth method" prescribe that a (particular) quoted price must be used for each category of transactions; some may also mandate a particular pricing date (such as the date of shipment) and/or quotation period to be used. The approaches adopted differ across countries in several respects, including (1) whether the method is prescribed in law, regulation or decree; (2) how the approach is applied, e.g. whether it is applied uniformly to all transactions or allows for (or requires) comparability adjustments based on the facts and circumstances of the case; and (3) the types of transactions to which the approach applies. Some variations, for instance, allow for taxpayers to "opt out" [40] of applying the approach where they can provide evidence that the counterparty entity, typically an associate of the taxpayer and an intermediary between the taxpayer and the arm's length customer (or supplier in the case of an import transaction), has sufficient economic substance. In such cases, the measure is typically designed to address situations where the existence of the foreign counterparty may make it more difficult for the local administration to verify the true transaction.

These approaches may be seen as an anti-avoidance measure by some countries, or they may reflect an intention of simplifying the application of transfer pricing principles to transactions in industries, which are very significant to the economy, which may be complex, and for which necessary information may be scarce. Where the criteria for application are clear, these kinds of approaches provide advantages in terms of greater certainty and simplicity. However, to the extent the approach does not consider the actual characteristics of the controlled transaction, they may result in over- or under-taxation, and hence, double taxation or non-taxation, particularly for controlled transactions with characteristics that differ significantly from those typically traded, and which form the basis of the relevant quoted price.

Using quoted prices as a basis for determining an arm's length price for a transaction is likely to be most reliable where there are transparent, deep, and liquid markets for the target products, and where the approach used is in line with industry practices, which may change over time. In addition, comparability adjustments should be made where required. In order to minimise the risk of over- or under-taxation, it is, therefore, important in the development of any prescriptive rules for policy makers to have a good understanding of the pricing practices used by independent parties in the industry.[41] Potential misalignment with industry practices in uncontrolled transactions is likely to be a particular risk where prescribed approaches are set out in legislation that takes time to be amended. More flexible approaches that allow for appropriate comparability adjustments, and for taxpayers to "opt out" where they

[39] Paragraphs 2.18-2.22 of *OECD Transfer Pricing Guidelines* (2017) or Section B.3.4.3.1.4 of the of the *UN Practical Manual on Transfer Pricing* (2017).
For example, provide that arm's length prices for commodity transactions may be determined by reference to comparable uncontrolled arrangements represented by quoted prices from commodity exchange markets. In addition, they recommend that tax administrations should be permitted to deem a pricing date and/or quotation period for the transaction where the taxpayer fails to provide reliable evidence of the actual pricing date or quotation period and the tax administration cannot otherwise determine the actual pricing date or quotation period.

[40] The 'opt out' clause puts the onus on the taxpayer to demonstrate the economically significant characteristics of the actual transaction.

[41] See supplementary report, *Addressing the Information Gaps on Prices of Minerals Sold in an Intermediate Form*

can demonstrate sufficient substance, would also help to ensure arm's length pricing and minimise the risk of inappropriate taxation.

Taking into account the potential disadvantages inherent in this type of approach, but also the potential benefits, this toolkit proposes that work should be carried out to determine the feasibility of further developing these types of methods to increase their reliability and address the risks of imposing non-arm's length pricing. For example, the potential for developing specific approaches for particular commodities, and incorporating a framework for adjustments such as those based on netback approaches (described below in Section 5.4.4 of Part II), may be explored..

See also the section on prescriptive approaches in Part III, Section 4.3.

2.4.3 Process of selecting the most appropriate method

The *OECD Transfer Pricing Guidelines* provide guidance on the identification of the most appropriate method as follows:

> *… the selection process should take account of the respective strengths and weaknesses of the methods; the appropriateness of the method considered in view of the nature of the controlled transaction, determined in particular through a functional analysis; the availability of reliable information (in particular on uncontrolled comparables) needed to apply the selected method and/or other methods; and the degree of comparability between controlled and uncontrolled transactions, including the reliability of comparability adjustments that may be needed to eliminate material differences between them.*[42]

Country transfer pricing rules based on the arm's length principle would normally allow a tax administration to replace a taxpayer's selected method in cases where the selected method is not the most appropriate one taking into account the facts and circumstances of the case.

Box 3 provides examples that illustrate the mechanics of applying various transfer pricing methods in particular ways (with no inference to be drawn from it as to the most appropriate method for manufacturing or sales entities, or as to an arm's length return for such entities).

[42] Paragraph 2.2 of *OECD Transfer Pricing Guidelines* (2017); Paragraph B.3.1.2of the *UN Practical Manual on Transfer Pricing* (2017). The delineation of the transaction (see section 2.2, above) will provide much of the information needed to determine the most appropriate method. Where the functional analysis reveals that one party makes a relatively more "routine" contribution, while the other party's contribution is more significant (perhaps involving the contribution of unique and valuable intangibles and economically significant risks) and a one-sided method is considered to be the most appropriate, a tested party will also need to be selected. This will generally be the more "routine" entity. See paragraphs 3.18-3.19 of the *OECD Transfer Pricing Guidelines* (2017) or Section B.2.3.3.1 of the *UN Practical Manual on Transfer Pricing* (2017).

Box 3. Stylised Case: Bolpen Inc

This simplified example illustrates the application of alternative transfer pricing methods to arrive at the profits accorded to each party.

Bolpen Manufacturing in Country X manufactures pens, which are sold to an associated enterprise, Bolpen Sales in Country Y. Bolpen Manufacturing purchases inputs from a number of arm's length suppliers. Bolpen Sales sells finished pens to arm's length customers. The table below summarises the key financial metrics for each entity before the application of the transfer pricing method to determine the price of the pens sold by Bolpen Manufacturing to Bolpen Sales.

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	? (this is the transfer price)	1,500
Cost of inputs or Cost of sales	400	? (this is the transfer price)
Operating costs	50	220

Depending on the facts, specifically, the functions, assets and risks of each party, any of the three approaches set out here, or indeed another approach not set out in this simplified example may be the most appropriate: which one will depend critically on the delineation of the transaction. The scenarios included in this Box are set out purely as illustrations of the mechanical workings of various transfer pricing methods.

Scenario 1: Assume the Cost Plus method is selected to benchmark the return to Bolpen Manufacturing. A benchmarking study is used to establish a cost plus margin of 40%.

The table below provides simplified financial statements after the application of the Cost Plus method:

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	**560** (i.e. 400+40%)	1,500
Cost of inputs or Cost of sales	400	560
Gross profit	160	940
Operating costs	50	220
Operating profit	110	720

Scenario 2: Assume the Resale Price method is selected to benchmark the return to Bolpen Sales. A benchmarking study is used to establish a gross margin of 20% for Bolpen Sales.

The table below provides simplified financial statements after the application of the Resale Price method:

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	1200	1,500
Cost of inputs or Cost of sales	400	1200
Gross profit	800	**300** (i.e. gross profit margin of 20% i.e. 300/1500)
Operating costs	50	220
Operating profit	750	80

Scenario 3: Assume that the TNMM is selected to benchmark a return to Bolpen Sales (i.e. Bolpen Sales is selected as the tested party). Furthermore, assume it is determined that the PLI to be used is a mark-up on operating costs only. A benchmarking study is used to establish a mark-up on operating costs of 10%.

The table below provides simplified financial statements after application of the TNMM:

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	1258	1,500
Cost of inputs or Cost of sales	400	1258
Gross profit	858	242
Operating costs	50	220
Operating profit	808	**22** (i.e. 220x10%)

In these examples, which capture features which are frequently observed in practice, the functional analysis of the parties, and from that, the delineation of the transaction will determine what kind of comparables should be sought and how compliance with the arm's length principle is to be tested. As is illustrated in these scenarios, applying different transfer pricing methods (and as a result, changing the kind of comparables sought and applied) can have a dramatic impact on the outcome for each of the parties. This could be much more significant than the margin of error that may result from imperfect comparables applied using the most appropriate transfer pricing method. For instance, changing the operating cost plus mark-up in Scenario 3 from 10% to 15% gives the following result:

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	1247	1,500
Cost of inputs or Cost of sales	400	1247
Gross profit	847	253
Operating costs	50	220
Operating profit	797	**33** (i.e. 220x15%)

A similar demonstration to the above can be made by comparing the application of a TNMM using Bolpen Manufacturing as the tested party, or Bolpen Sales as the tested party. As with the choice of method, the selection of the appropriate tested party will depend on the facts, specifically, the functional analysis of each party and from that, the delineation of the transaction.

Scenario 4: Assume Bolpen Manufacturing is chosen as the tested party and a TNMM with a PLI of a mark-up on full costs is selected as the transfer pricing method. A search for comparables provides for a 10 percent mark-up on full costs. The following table summarises the results of the application of the TNMM with Bolpen Manufacturing as the tested party:

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	**495** (i.e. (400+50)+10%)	1,500
Cost of inputs or Cost of sales	400	495
Gross profit	95	1005
Operating costs	50	220
Operating profit	45	785

Assume Bolpen Sales is chosen as the tested party and a TNMM with a PLI of a return on sales is selected as the transfer pricing method. A search for comparables results in a benchmark return of 5 percent net margin on sales.

	Bolpen Manufacturing	Bolpen Sales
Sales revenue	1205	1,500
Cost of inputs or Cost of sales	400	1205
Gross profit	805	295
Operating costs	50	220
Operating profit	755	**75** (i.e. 5% of 1500)

Once again, depending on the facts of the case, Scenario 4, Scenario 5 or an alternative scenario might best fit the actual transaction.

As with the choice of method, the choice of tested party in an application of the TNMM can have a very significant impact on the profit of each enterprise which may be much greater than the margin of error that may result from imperfect or imprecise comparables applied to the most appropriate tested party.

The five scenarios presented here, applying different transfer pricing methods or applying a method in a different way, each produce very different results. This of course reflects the assumptions used in the examples, but illustrates why the accurate delineation of the transaction, and from it, the selection of the most appropriate method (and the selection of the correct tested party where relevant), is so important to a reliable transfer pricing analysis: if this foundation is incorrect, irrelevant and inappropriate comparables may be used, making it more likely that the results of the analysis will not reflect arm's length outcomes and could thus result in incorrect allocations of taxation between jurisdictions, double taxation or less than single taxation. Data quality and availability also matter, of course: imperfect or imprecise comparables applied to the correct tested party or using the most appropriate method will obviously lead to less accurate outcomes. A key point, nonetheless, is that it is essential to consider the functional analysis (taking into account the assets used and risks assumed) of the parties to the transaction (Bolpen Manufacturing and Bolpen Sales) to determine which transfer pricing method is the most appropriate to the actual transaction, and how it should be applied, including – critically – what kind of comparables should be sought. Neither taxpayers nor tax administrations can choose a method at will: the selection of the most appropriate method is a matter of fact and application of principle.

All transfer pricing analyses will turn on their own facts, but where there is an assumption of economically significant risks and/or unique and valuable contributions such as intangibles,[43] these will often be very important factors in selecting the most appropriate method, and where relevant, the selection of the tested party. For instance, where an enterprise assumes the economically significant risks, including those associated with a unique and valuable intangible, it is unlikely to be possible to identify a reliable comparable for it, and a one-sided method that tests the return to that enterprise will not be appropriate.

[43] Note that any analysis of intangibles must consider the parties' contributions to the intangible, including its development, enhancement, maintenance, protection and exploitation, and not merely legal ownership. See paragraph 6.42 of the *OECD Transfer Pricing Guidelines* (2017) or Section B.1.6.13 of the *UN Practical Manual on Transfer Pricing* (2017).

2.4.4 Conclusions on selecting the most appropriate method

There is no hierarchy in the selection of transfer pricing methods. There can be situations, based on the accurate delineation of the transaction, where a transactional profit split is more appropriate than a CUP or a one-sided method,[44] and vice-versa. If it is possible to benchmark a return for one of the parties to a transaction (normally a party that undertakes only routine activities and does not make unique and valuable contributions), then a one-sided method such as a cost plus, resale price or TNMM may be found to be the most appropriate method. On the other hand, if the parties are highly integrated and/or both make unique and valuable contributions, it is more likely that a one-sided method cannot be applied reliably, or cannot be applied at all. In such cases, a transactional profit split might be the most appropriate method.

This section has attempted to demonstrate that the choice of the most appropriate method will, in many cases, be a very significant determinant of the allocation of profit between enterprises. This is illustrated in Case Study 2.

3. Data Relevant for Comparability Analyses

3.1 Role of data

The application of the arm's length principle generally requires reference to information from uncontrolled transactions. This section considers the sources of such information and illustrates areas where available information is insufficient. Alternative approaches that may be available in such instances are considered in Part III of this toolkit. It is important to note that the challenge of insufficient information can arise in all parts of the transfer pricing spectrum. Often, no reference information exists to compare highly complex transactions such as those involving unique and valuable intangibles. However, limitations in the availability of information can occur in relation to all transactions, not just those of a unique nature and complexity.

3.2 Sources of potential comparables data and typical types of data used

Any source of information should be acceptable, as long as it leads to reliable financial and business information for the transfer pricing analysis. There are two broad types of comparables: internal and external. There is no hierarchy between internal and external comparables: the most reliable available comparables should be sought.

An internal comparable exists where there is a comparable transaction between one party to the controlled transaction and an independent party. The *OECD Transfer Pricing Guidelines* notes that where they exist:

> *Internal comparables may have a more direct and closer relationship to the transaction under review than external comparables. The financial analysis may be easier and more reliable as it will presumably rely on identical accounting standards and practices for the internal comparable and for the controlled transaction. In addition, access to information on internal comparables may be both more complete and less costly. On the other hand, internal comparables are not always more reliable and it is not the case that any*

[44] Paragraph 2.4 of *OECD Transfer Pricing Guidelines* (2017).

transaction between a taxpayer and an independent party can be regarded as a reliable comparable for controlled transactions carried on by the same taxpayer.[45]

However, in practice, application of the arm's length principle is often heavily reliant on external comparables. An external comparable exists where there is a comparable transaction between two enterprises that are independent of one another, and neither of which is a party to the controlled transaction. The most common source of information on external comparables is commercial databases, which are discussed in the section below.

3.3 Commercial databases

Commercial databases are not necessarily designed for transfer pricing purposes. They typically contain information from public disclosures, for instance, audited company accounts required by corporate, market, financial services, or other regulators, and may cover a large number of sectors and companies.

There are different types of databases. Some contain only financial markets data, others contain data on particular transactions, and still others contain company accounts or other financial information. Some databases collate information from specific geographic areas. The amount of available detail also varies by database, company, and geographic area. In many cases, since the database relies on disclosures required by certain regulatory bodies, the extent of disclosures in a database is determined by the relevant disclosure requirements (see Appendix 3 for an overview of relevant databases). This tends to limit the amount of data directly drawn from developing countries.

Limitations and challenges in using commercial databases

As has been noted above, most commercial databases collate information produced for purposes other than transfer pricing. This can mean that the information collected does not always address the issues relevant for a transfer pricing analysis.

With respect to commercial databases, many developing countries report two core challenges: access and limited data coverage. First, they highlight difficulties, including costs involved, in relation to accessing commercial databases. Second, even where they can be accessed, the databases often contain limited information on local economic operators that may potentially serve as comparables.

A combined review of several private databases[46] commonly relied upon by practitioners does suggest a scarcity of domestic information that can be used for comparability analysis in many countries. The table in Appendix 4 summarises information available in several databases to transfer pricing practitioners globally for the year 2013. To approximate practical requirements only local companies that are independent and for which revenue and net margin information is available (for the possible application of the arm's length principle using the

[45] Paragraphs 3.27-3.28 of *OECD Transfer Pricing Guidelines* (2017) or Section B.2.3.4.2 to B.2.3.4.4 of the *UN Practical Manual on Transfer Pricing* (2017).

[46] Please note that the table referred to summarises information shared voluntarily by several private database providers at request. It is thus not a complete summary of globally available information and more information may be available for some countries in databases not included in the review.

TNMM)[47] have been counted. Of about 8,885,000 global records for which revenue and net margin information is available, around 5,000,000 meet the basic independence requirement. For more than 164 countries, fewer than 1,000 local observations were available that met the stipulated minimum requirement in 2013. While ongoing efforts of commercial providers to increase coverage are improving the situation,[48] it will regularly be necessary to look for alternative, non-domestic information sources in many countries.

At first glance, this review confirms that for many countries, and in particular emerging and developing economies, there may not be easy access to local comparables. It is noteworthy that this list of countries with very limited domestic information available in public databases includes many that have introduced comprehensive transfer pricing regulations. In these countries, the scope for the application of any transfer pricing method is severely constrained if it has to be based on local comparables. Moreover, the depiction also reveals inconsistency in amount of data available in various OECD economies.

A number of factors affect the variation on the availability of information. The obvious starting point is the relation between the size of a country's economy and the number of companies in that country. Other structural factors may include the dominance of markets by a few large MNEs or other corporations, important levels of state ownership in selected sectors, and the importance of smaller, sometimes informal, economic operators in many developing countries. In addition to these structural factors, there are, however, a range of regulatory and administrative choices that affect information availability (see Section 2 of Part III).

In addition to limited information being captured in commonly used databases, tax administrations of developing economies frequently report that they face challenges in accessing these databases. Notably, in a recent survey of tax officials participating in the Global Transfer Pricing Forum 2016 almost half of the representatives from non-OECD countries indicated that their administration did not have access to a commercial database. The challenge of obtaining access to existing information largely relates to budgetary constraints faced by tax administrations in purchasing commercial databases. These constraints could be addressed through a range of initiatives:

- At the outset, countries should consider exploring the possibility of discounted rates with the commercial database providers. The use of a specific database by the tax administration likely has a non-negligible signalling effect on the private sector and tax advisory service providers. Consequently, commercial data providers have an interest in strategic partnerships with revenue services.

- Countries may also consider the acquisition and use of databases, perhaps through regional organisations.

- Some countries, such as Romania, have addressed budgetary constraints by using funds from APA application fees to buy database access; while other countries, such as Kenya,

[47] It is important to note that the minimum criteria do not take into account other factors that require consideration when analysing comparability for applying the arm's length principle in a particular case, such as industry, size, functions performed, assets employed, risks assumed, and so forth. Applying these factors would further narrow the sample of domestic information for actual cases.

[48] A more recent overview on available data in Bureau van Dijk's ORBIS database in 2017, for instance, suggests that the universe of records meeting the minimum requirement now exceeds 10 million records (BvD Comments to the Discussion Draft, April 6th 2017).

used actual/projected collections from transfer pricing collections as a basis to obtain budgetary approval.

- Other countries have obtained donor support to obtain funds to purchase access to commercial databases.

Reportedly, some countries' tax administrations have sought to deal with the lack of access to databases by increasing their requirements of taxpayers, for example, by requiring taxpayers to include screenshots in their transfer pricing documentation files as part of the documentation of the benchmarking study.

3.3.1 Price databases, publications and exchange quoted prices for commodities

In addition to the general databases described above there are specialised databases and publications available for mineral, agricultural, and energy products, both from specialist trade publications (which may include additional analysis and commentary), or data directly from commodities or futures exchanges. These publications typically provide information on market conditions and prices, trading terms and industry developments (such as long-term and short-term demand and supply forecasts, including, for example, the maintenance operations or other conditions impacting output of major mines).

These publications can be useful for revenue authorities to understand market dynamics and the context for transactions, as well as to find transactions that are potentially comparable to the transaction under review. In some cases, publications may also provide information on average premia or discounts which may apply for a particular commodity sold at a place other than that indicated in standardised contracts. A non-exhaustive list of data sources for each mineral product case study is available in the supplementary report into mineral product pricing.

Quoted prices from commodities or futures exchanges may also be a useful source of information in some cases. However, as with any potential source of information, its reliability as a comparator to the tested transaction needs to be considered. Exchange quoted prices for commodities generally reflect derivatives transactions which may deviate from market prices for the physical transfer of the commodity in a particular market. Furthermore, the particular conditions of the tested transaction may differ from the standardised contracts traded on the exchange. The depth, transparency and liquidity of the market should also be taken into account. Nevertheless, such information can provide useful indications as to market prices and the process of price discovery undertaken by independent industry players.

A critical part of market price determination is the flow of information on market conditions to market participants. This includes information about current and future demand and supply conditions, as well as information on the trading activities of competing firms. This information—in particular information on the terms used in the last incremental sale of a unit of the commodity—helps prices gravitate toward one consistent market price.

In some markets, much of the information on individual transactions is not available to parties outside the trade and is closely guarded by market participants. For example, a supplier who has extracted a relatively high price for a commodity may not wish his competitors to know that since this may risk those prices being undercut in future. Alternatively, there may be only a limited number of buyers or sellers, such as in markets for many rare earth minerals.

To assist market price discovery, numerous publications have arisen for particular mineral and other commodity products, publishing information on market conditions and recent transactions. These publications are based on observations of transactions and/or continuous contact with key market participants and traders, who may report transactions but not necessarily identify the parties to the transaction.

Because sales terms can vary widely, some data publishers adjust raw trade data before publication. This could mean the publisher:

- excludes sales at terms that are notably inconsistent with other transactions around that time;
- fills in elements of a transaction that have not been disclosed by market participants (for example, the publisher may know a particular quantity of a specified form of iron ore has been sold and where it is going, but not the full commercial terms of the transaction);[49];
- adjusts or "normalises" observed prices in transactions back to a standard product specification, where those transactions do not occur under common contract terms (for example, where iron ore is shipped to an uncommon destination port);
- provides an assessment of the price in the absence of sufficient trades. That is, they may publish their own estimate of what the product would have traded at on that day, had a transaction occurred.

Adjustments to the raw data ultimately reflect the publisher's opinion. Their appropriateness, therefore, depends on the ability of publishers to access detailed information on transactions, as well as their experience and skill to choose which pieces of information are most relevant to market participants. Many publishers provide information about the methodologies used to make adjustments, increasing transparency around the process.

Some market participants (and, indeed, revenue authorities) urge that the data, therefore, be used with care, as they may not reflect purely factual information. Revenue authorities will need to give consideration as to how, for example, judicial processes may view a data source. For instance, it may be relevant to consider how widely the source is used by market participants themselves.

In the absence of other information, such as in instances where a taxpayer refuses (or is unable) to provide information about actual contract terms, it may be reasonable to use data publications or exchange quoted prices as a starting point to ascertain what terms were used in similar transactions around the same time. It may also be appropriate to use prices disclosed in such publications, or quoted on a public exchange, as the basis upon which to determine arm's length prices, particularly where such a publication or data source is widely used by independent market participants themselves. However, adjustments may be required where

[49] In particular, these commercial terms would include the obligations of the buyer and seller in relation to the place of delivery of the goods, customs clearances, and related costs such as freight, insurance and any duties payable. Such terms are generally set out in accordance with the Incoterms rules established by the International Chamber of Commerce.

the conditions of the controlled transaction differ from those forming the basis for the quoted price.[50]

It should be noted that pricing data described above will normally be relevant only where the CUP method is the most appropriate method. Depending on the outcome of comparability analysis, other methods may be more appropriate for transactions involving commodities.

3.4 Identification of potential comparables

(Step 7 of the typical process described in Chapter III of the *OECD Transfer Pricing Guidelines*, Section B.2.3.4 of the *UN Practical Manual on Transfer Pricing*)

Internal comparables

In some cases, information regarding transactions between the taxpayer (or an associated enterprise of the taxpayer) and unconnected parties may be available. While such information can be very useful, an analysis would be needed to determine whether these transactions are in fact comparable to the transaction(s) under review.

Box 4. Chocolate Bar Manufacturer

This simplified example illustrates the identification and use of internal comparables.

According to the functional analysis performed, Company A is an entity that transacts with other associated enterprises. Company A has several business lines, one of which is dedicated to the manufacturing/production of chocolate bars and other confectionary products. The chocolate bars are sold by Company A to Company C. A special type of granola bar that is physically different from the chocolate bars and to which no reliable adjustments can be made to make it comparable to the chocolate bars, is manufactured by Company A and sold to unrelated parties. Clearly, the granola bars are not comparable products to the chocolate bars and the use of the CUP method in this case is not appropriate.

However, the accurate delineation of the transactions demonstrates that functions performed, assets used, and risks assumed by Company A in manufacturing chocolate bars and granola bars are very similar, if not identical. This would imply that the reward to the functions related to manufacturing granola bars may be used as the *internal comparable* to the reward to the functions related to manufacturing chocolate bars, and a profitability return can be attributed to each function based on the selection of the most appropriate transfer pricing method.

Thus, the internal comparable may be used to determine the arm's length nature of the controlled transaction by comparing the profitability of each production line.

[50] See paragraphs 2.18-2.22 of *OECD Transfer Pricing Guidelines* (2017) for more guidance on the use of quoted prices for commodities.

External comparables

It may also happen that derived from the functional analysis, information regarding the controlled transaction has been clearly delineated but no potential internal comparables have been identified for the analysis. In this case, external comparables need to be considered and identified. Depending on the facts and circumstances of the case and on the comparability factors affecting the potential comparables, external comparables could be sought from domestic and/or foreign sources of information. Appendix 3 of this report presents an overview of available sources of public data.

Box 5. Sugar Producer

This simplified example illustrates the identification and use of external comparables.

Following the facts of the illustration in Box 2, Company A produces a commodity product that is traded with associated enterprises only.

The accurate delineation of the transaction shows that Company A purchases sugar cane from independent producers, which it then processes into raw cane sugar. This sugar is then sold to its associated enterprise, Company B, which packages it and distributes to wholesalers and large retailers, under its own trademark.

The analysis further shows that, under an agreement between Company A and Company B, the former contracts to produce sugar only to the order of Company B. Furthermore, Company B is obliged to purchase all the sugar produced by Company A, and actually does so. The analysis reveals that all decisions concerning the amount of sugar to be produced, and scheduling of that production, are made by Company B personnel. Company A does not have any unique and valuable intangibles and does not make any material contributions to any intangibles owned by associated enterprises.

It is concluded that the inventory risk and the market risk are assumed by Company B, and that Company A is most accurately characterised as a 'contract manufacturer' on behalf of Company B. It was further concluded that the most appropriate method in this case is a Transactional Net Margin method, using Company A as the tested party and operating profit/full costs as the PLI.

As no internal comparables are available, it was decided to use one of the commercial electronic databases to identify potential comparables. The search criteria were selected with the aim of identifying independent manufacturers of commodity food products in Country A that did not exploit unique and valuable intangibles, did not conduct material sales and marketing activities, and did not have other business lines. The search initially identified 45 such manufacturers. A manual review of these manufacturers rejected 12 companies, leaving 33 potential comparable manufacturers ("potential comparables"). The search resulted in comparables which were used to benchmark a return for Company A, in line with its routine functions and very limited risks.

As has been noted above, it generally makes sense to begin a search for comparables with information available concerning the local geographic market of the tested party since with such information there is typically no need to consider the impact of geographic market differences. However, where comparables local to the tested party are scarce or unavailable, data from other geographic markets (potential 'foreign comparables') can be considered. In such cases, it will be important to examine whether differences in markets are likely to make a material difference to the condition being examined. Where the transaction occurs in a truly global market, geography may not make a material difference.

In some cases, the geographic market may be less relevant than other characteristics, meaning that the most reliable comparables available are those from a foreign market. For example, when using a TNMM, an independent entity from a foreign market with highly comparable functions, assets, and risks may provide a more reliable comparison for transfer pricing purposes than an uncontrolled entity from the local market with a lower degree of comparability in terms of its functional analysis.

Box 6. Different Geographical Markets

This simplified example illustrates that comparables in a differing geographical market can be selected as the most reliable comparables.

The tax administration in Country X was undertaking a transfer pricing audit of a local subsidiary of a large MNE. It had delineated the controlled transaction as the provision of manufacturing services under a contract manufacturing agreement between the associated enterprises. The functional analysis revealed that the subsidiary performed routine manufacturing services using its own assets as well as certain intangibles owned and developed by its associated enterprise. The subsidiary did not undertake any significant research and development, or sales and marketing activities. A search for comparable contract manufacturers in Country X was unsuccessful. The only information on independent manufacturers in Country X was derived from entities with significant research and development and/ or sales and marketing functions. Many of the independent manufacturers also appeared to have unique and valuable intangibles.

The audit team concluded that these differences were highly likely to have a material effect on the condition being examined. They, therefore, sought potential comparables from other geographic markets, in particular those where economic conditions were considered similar to those in Country X. A number of independent contract manufacturers based in other markets were found and reviewed.

Based on a thorough analysis of the facts in this case, the audit team concluded that data from independent contract manufacturers with a similar range of functions, assets, and risks as the local subsidiary, albeit from another jurisdiction, provided a more reliable comparison than any of the local manufacturers.

3.4.1 The comparables search process

The following section outlines a typical comparables search process that aims to identify potential comparables using a commercial database. It assumes that the controlled transaction has been accurately delineated and that a one-sided method is determined to be the most appropriate to the circumstances.

The process set out below should be regarded as an example only and may need to be tailored to the specific facts of the case. In particular, the screening criteria selected, and the ordering of those criteria should be considered carefully based on an identification of the most economically relevant characteristics of the transactions to be tested. For instance, while typical screening processes rely on factors such as geographic market (discussed in the section above), and industry classification codes as a practical means of refining a search, the extent to which these factors are aligned with the economically relevant characteristics of the accurately delineated transaction needs to be considered. For example, a distributor of pharmaceutical goods with a large sales force which outsources logistics and goods handling to a third party provider (and thus has no warehouses, logistics infrastructure or inventory risks) is unlikely to be comparable to entities falling within the industry classification of "pharmaceutical

goods importer, wholesale" if typical companies within that classification in fact have significant warehousing and logistics functions, assets and risks, and smaller sales forces. In such cases, consideration should be given to widening or re-ordering the search criteria to prioritise the features of the transaction which are the most economically relevant; and using other means, such as carefully selected financial or diagnostic ratios[51] to refine the search.

Box 7. A Typical Process to Screen for Comparables

1 Industry/business activity qualification codes

A common starting point in the comparables search process is industry/business activity classification codes. The most common classification codes are presented in Appendix 5. Additionally, other countries have also created their industry classification codes for statistical purposes or utilise other sources of business activity classification codes. A list of these codes is provided in Appendix 6.

In practice, the Standard Industry Classification codes (SIC), the Nomenclature of Economic Activities in the European Community (*Nomenclature statistique des activités économiques dans la Communauté européenne,* NACE), and the North American Industry Classification System (NAICS) industry codes are the most commonly used by taxpayers and tax administrations worldwide, but any of the codes may be relevant depending on the data available. Guidance on how these three industry codes are used is provided in Part C of Case Study 3.

2 Geography/region/country/market

It generally makes sense to consider potential comparables from the same geographic market as the tested party in the first instance as this will minimise any potential differences that could have a material effect on the comparison. Where there is no information available relating to transactions that are in other respects comparable to the tested transaction *and* relate to the same geographic market, it is important to consider the relative importance of the various comparability factors, bearing in mind that the aim is to find the most reliable comparables available. That is, other comparability factors such as those relating to the functional analysis may be more important in a particular case than the geographic market, in which case, this screening criterion could be demoted or even abolished.

Where the market is considered to be a key comparability factor, it may be appropriate for this to be defined as a country, a region, or group of countries that are considered to be either (a) a single or largely integrated market; or (b) sufficiently similar to the market of the tested transactions.
See also Part 1 Section 5.5 on use of foreign data.

3 Key words related to the business activity

This stage generally involves identifying and searching for key terms related to the tested party's business and the activities associated with the transactions under review.

4 Availability of financial information

For practical reasons, potential results are screened out if two or more years of information are missing.

5 Level of revenues (or other indicators of size, such as assets or number of employees)

Comparing entities that are of similar size can be important as the magnitude of the business can have a material effect on comparability. In addition, it may be appropriate in some cases to examine more carefully any companies with continuous losses.

At arm's length, independent companies may make losses, but this would not be expected to continue for an extended period of time.

[51] See section 6.3.1

6 Independence

A fundamental element of the arm's length principle is that of a comparison between the controlled transaction and uncontrolled transactions. Therefore, most search processes will seek to eliminate transactions that have been entered into by entities that belong to a multinational group. See Appendix 7 for an explanation of the independence criteria.

7 Type of financial accounts

This stage focusses on identifying entities that provide either consolidated or statutory financial accounts. Financial information of comparables should not be affected/influenced by connected circumstances. Care must be taken when using consolidated financial accounts. They may be used only if the functions conducted by the consolidated group equate to those of the tested party.

8 Active/inactive entities

Inactive entities are usually screened out in the search process as circumstances between active and inactive entities are generally different.

9 Screening for functional comparability

In some cases, the key word search related to business activities described above can be refined by screening transactions based on certain amounts in the financial accounts which would indicate the existence (or absence) of certain functions or assets. For example, if the tested party does not undertake any research and development and does not use any intangibles which may have been created through R&D, it may be appropriate to include a screen to exclude entities which have non-negligible amounts of R&D expenses.

See also the discussion of diagnostic ratios in section 6.3.1 below.

10 Additional manual screening reviews

Additional criteria associated with the facts and circumstances of the case may be critical to review at a manual level. For an example of the application of the screening process, see Part C of Case Study 3.

3.4.2 Reviewing a comparables search process using commercial databases

Rather than undertaking a full comparables search themselves, it may be appropriate instead for the tax administration to critically analyse the comparables search undertaken by the taxpayer.[52] This may be the case, for example, if the tax administration does not have access to a database, or for taxpayers regarded as engaged in low-risk transactions, or those with a strong compliance history. A typical process for reviewing a comparables search is presented in Appendix 8.

[52] A further toolkit on Transfer Pricing Documentation will be developed by the Platform for Collaboration on Tax in 2017, which will provide tools such as model legislation/regulations to require the keeping and/or filing of relevant transfer pricing documentation.

Box 8. Country Practices

Some countries prefer to start their analysis with the information provided by the taxpayer. Depending on the particular case, this will often consist of the normal transfer pricing documentation. In some cases it may be supplemented by the taxpayer's responses to questionnaires issued by the tax administration.

South Africa also always starts with what the taxpayer has done. If there are disagreements on certain parts, they will discuss these with the taxpayer and try to find solutions. If there is total disagreement, they will do their own comparability analysis rather than relying on a review of the analysis performed by the taxpayer.

Mexico takes as a starting point the taxpayer's comparability analysis and from there reviews and sometimes replicates the search. In this process, Mexico assesses whether all the comparability analysis steps have been properly performed and taken into account. If there are inconsistencies, they may perform their own search for comparables. Mexico always corroborates the functional analysis presented by taxpayers.

New Zealand always reviews the information given by the taxpayer, using their experience to analyse its reliability. Norway and Colombia also typically start with the analysis they get from the taxpayer. Colombia always does its own functional analysis (generally including going to the company and doing interviews with key staff). If the comparables used by the taxpayer do not seem to be reliable, then other comparables are selected.

In contrast, Australia usually undertakes its own benchmarking, often based on common sets of potential comparables for particular kinds of transactions, which are then modified based on the particular facts and circumstances and taking into account the information provided by the taxpayer.

Source: OECD interviews with country representatives, May 2016.

4. Making Optimal Use of Available Data

As noted above, commercial databases and statutory filings are perhaps the most commonly used source of data for transfer pricing comparability purposes when they are readily available. Other potential sources of information are discussed in this section.

4.1 Other sources of information

4.1.1 Information in the hands of the tax administration

In many developing countries, the information collected by tax administrations through tax filings or at customs may be the most comprehensive source of domestic data on potential comparable uncontrolled transactions. However, the information typically is covered by tax secrecy rules and not available to taxpayers. Furthermore, in the case of customs data, the information collected is unlikely to be directly applicable to a transfer pricing analysis (see below). Consequently, the *UN Practical Manual on Transfer Pricing* and the *OECD Transfer Pricing Guidelines* caution against the use of this kind of information for transfer pricing comparability purposes ("secret comparables"), unless requisite information can be disclosed to the taxpayers within the limits of domestic confidentiality rules.

Countries have adopted different positions on the use of secret comparables [53]ranging, for example, from explicit provisions allowing for the use of non-public information in China; to strong opposition to their use in Austria and the United States. Most, but not all, countries either specifically prohibit the use of secret comparables or refrain from using them in practice, in particular because of concerns for procedural fairness towards the taxpayer concerned.[54] Other countries may limit the use of secret comparables to narrowly defined circumstances, such as where a taxpayer fails to comply with reasonable requests for information; or permit the use of non-public information where it can be legally disclosed to the taxpayer or a taxpayer's representative.

This toolkit notes that information held by the tax administration may be useful in ensuring safe harbours or similar approaches approximate an arm's length outcome. However, due to the sensitive nature of such information, the use of such data should be handled with care. See also Part III, section 4.1 of this toolkit.

4.1.2 Customs data

Customs data is sometimes suggested as a potential source of data on comparables. It is questionable, however, whether information can be used to assess comparability for transfer pricing purposes. Customs valuation data is collected by the customs authorities at the time of import[55] and the information is confidential and not typically publicly available at the transaction level. In most countries, customs valuations to determine the customs duty liability must be determined in accordance with domestic legislation that is based on the WTO Valuation Agreement (1979). In such cases, the transaction value, being the price actually paid or payable with respect to the sale that resulted in the export is the starting point and is the method required to be applied wherever possible (in general used for over 90 percent of imports).[56] However, mis-pricing can also affect customs values. Hence, the customs valuation rules allow for methods other than the transaction value to be applied where it is demonstrated that the relationship between the importer and exporter has influenced the price, or where no sale has taken place. The alternative methods prescribed for in the rules then must be applied in strict hierarchical order and are reliant on the availability of certain information (identical or similar goods, industry margins etc.) Moreover, customs valuation data is collected by the customs authority based on specific codes/nomenclature for goods types. Whilst these codes are relatively descriptive, alone, they typically do not provide the level of detail necessary for ascertaining certain characteristics of the goods (i.e. they do not distinguish between goods of different quality or branding), the functions, assets and risks of the parties to the transaction, and the terms of trade. In some cases, however, customs data may be useful to supplement other available information, particularly with regard to the physical characteristics of the goods or the precise date of shipment.

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[53] That is, comparables based on information which cannot be disclosed to the taxpayer, for instance because it is derived from tax returns or compliance activities on other taxpayers undertaken by the tax administration. See paragraph B.1.6.30 of the *UN Practical Manual on Transfer Pricing* (2017) or paragraph 3.36 of the *OECD Transfer Pricing Guidelines* (2017)

[54] For court cases on secret comparables, see Muyaa, E. September/October 2014. *Transfer Pricing Comparability Adjustments: The Pursuit of "Exact" Comparables*.

[55] Customs valuations are relevant at the time of import. The transaction for which the customs valuation is determined may differ from the transaction that is relevant for transfer pricing purposes, for example, where the importer is a foreign party who sells the goods to the related party post importation.

[56] Countries are allowed to choose whether this price should be the FOB (Free on Board) or CIF (Cost, Insurance and Freight) price, with adjustments made where needed. Specific adjustments to the price may be required for certain commissions, royalties, assists etc.

The OECD, WBG, and World Customs Organization (WCO) have been developing practical tools for closer co-operation between customs officers and transfer pricing auditors. Given the different frameworks that apply to each, these efforts have focused on encouraging greater understanding of each other's rules and from there, better use of available information. The three organisations mentioned have jointly run several workshops involving officials dealing with both customs valuation and transfer pricing. In addition, the WCO, working with the OECD and WBG, has produced a guide that provides background on both customs and transfer pricing methodologies and examines the areas of overlap and possible ways for customs to use transfer pricing data when examining related party transactions, together with some examples of national practices.[57]

However, non-public administrative information can be highly relevant in practice. Typically, it is the main source of information for the design of benchmarks for risk assessment guiding audit selection. Information from tax returns in the hands of the tax authority can be used to review taxpayer performance against industry benchmarks and other structural risk indicators. It is usually supplemented with information from other sources, including publicly filed accounts at the stock exchange, other sources on industry performance, such as chamber of commerce or business registry data, and private databases or media reports. The data published by different sources on industry specific performance will be useful for risk assessment, but problematic to support actual transfer pricing assessments given that the composition of industry averages is usually fairly broad and includes data from controlled transactions.

Moreover, administrative information has the potential to be used as a source of information for the design of safe harbour rules. In particular, such information may be available to set reliable safe harbour ranges without breaching taxpayer confidentiality. This is discussed further in Section 4 of Part III.

4.2 Wider selection of data

Where necessary, loosening or altering initial screening filters may also increase the pool of information available for comparability studies. The challenge here is in striking the right balance as a wider selection criterion can come at the cost of loosening comparability. It is important in this regard to take a pragmatic approach: to weigh up the availability of data against the need to find an answer to the transfer pricing question at hand. 'Perfect' comparables are seldom available, but in practice resolutions acceptable to all parties are generally reached even with imperfect information.

While typical screening processes rely on factors such as industry classification codes as a practical means of refining a search, the extent to which such a code or other screening criterion is aligned with the economically relevant characteristics of the accurately delineated transaction needs to be considered. In particular, the use of data from other industries or indeed other geographic markets, where appropriate,[58] with similar functional profiles[59] can be considered and in many cases, may provide reliable comparables. Such approaches are likely to be more effective when applying a one-sided method that relies on a net profit measure, i.e. TNMM, as differences

[57] www.wcoomd.org/en/media/newsroom/2015/june/new-wco-guide-to-customs-valuation-and-transfer-pricing.aspx
[58] See Section 5.5.
[59] The possibility of looking at domestic data from different industries with similar functional profiles is also proposed in Paragraph B.2.4.3.4 of the *UN Practical Manual on Transfer Pricing* (2017).

in accounting classifications between industries and countries are more likely to reduce the reliability of comparisons made at a gross profit level.

Box 9. Broadening Search Criteria

The tax administration in Country A was undertaking a transfer pricing audit of a local subsidiary of a large MNE. It had delineated the controlled transaction as the sale and purchase of construction and mining machinery. An analysis of the industry revealed that this sector is highly cyclical. The local subsidiary was engaged in marketing, sales, and distribution activities, and was found to assume a significant market risk. The tax administration sought information on independent distributors of construction and mining machinery and related goods performing comparable marketing, sales, and distribution activities in Country A, but was unable to find any. The audit team had a number of options for determining an arm's length range for the controlled transactions, including searching for:

- Local, functionally similar wholesale marketer/distributors of other types of plant, equipment, and machinery and other goods.
- Functionally similar wholesale distributors of construction and mining machinery and related goods in foreign markets with similar economic conditions (particularly levels of capital investment) to those experienced in Country A over the audit period.

Potentially, less rigid independence requirements could also be considered in some cases. Some countries prefer to screen potential comparables using very strict ownership and control requirements, for instance, by excluding entities where one shareholder holds (directly or indirectly) a significant minority share. While this kind of cautious approach may be appropriate, it may also result in there being no acceptable comparables information with which to undertake the transfer pricing analysis. Some countries address this issue by considering potential comparables where independent minority shareholders may effectively mitigate risks of non-arm's length practices among related entities, or where such entities have disclosed no related party transactions in their audited financial accounts. These kinds of pragmatic approaches may be of assistance, particularly in markets that are highly concentrated, or where joint ventures are common.

5. Determination of and Making Comparability Adjustments Where Appropriate

(Step 8 of the typical process discussed in Chapter III of the *OECD Transfer Pricing Guidelines*, Paragraph B.2.3.5 of the *UN Practical Manual on Transfer Pricing*)

5.1 General

Where there are material differences in the condition under examination between the potentially comparable transactions and the controlled transaction, it is important to consider if reasonably accurate adjustments can be made to eliminate the effect of such differences. These adjustments are called "comparability adjustments."[60] However, comparability adjustments themselves can introduce additional complexity and potential subjectivity and should be made only if they are expected to increase the reliability of the results[61] and should not be applied automatically without consideration of the applicable facts and circumstances. It is, therefore, important to consider whether a comparability adjustment is likely to improve the reliability of the comparison or whether the unadjusted results (while imperfect) will provide greater reliability.

Box 10. Unadjusted Results May Be More Reliable Than Adjusted Results

Company J, a tax resident in Country A and a subsidiary of an MNE group, was subject to a transfer pricing audit. Through the process of accurately delineating the transaction, it was determined that Company J was engaged in the purchase (from its associated enterprise) and distribution of consumer goods. The taxpayer's transfer pricing documentation included a comparability analysis. The results of their comparability search yielded a number of independent distributors of other consumer goods. The taxpayer's transfer pricing analysis proposed adjustments to the potential comparables to account for the fact that, unlike the tested party, they did not incur costs associated with producing transfer pricing documentation. The taxpayer argued that these costs had a material effect on the condition being examined, being the EBIT to Sales ratio, since they were included in the operating costs of the tested party but not in those of the comparables.

While the independent distributors clearly did not incur costs associated with producing transfer pricing documentation, they were likely to incur other costs associated with negotiating with their suppliers, which could be in excess of those incurred by the taxpayer with its related party supplier, as well as other tax compliance costs. However, these costs were not separately disclosed in the financial accounts of the comparables. The tax administration, therefore, concluded that while the transfer pricing documentation costs incurred by the taxpayer were significant in at least one of the audit years, the taxpayer's proposed adjustment was, on balance, more likely to reduce the reliability of the comparison than to increase it, compared to using the unadjusted EBIT/Sales results.

[60] Paragraph 1.40 of *OECD Transfer Pricing Guidelines* (2017) or Section B.2.3.5 of the UN Practical Manual on Transfer Pricing.
[61] Paragraph 3.50 of *OECD Transfer Pricing Guidelines* (2017) or Section B.2.3.5.22 of the *UN Practical Manual on Transfer Pricing* (2017).

There is no universally accepted method for comparability adjustments nor is there consensus among tax administrations about the reliability of different comparability adjustments. However, the most commonly used comparability adjustments are:

- working capital adjustments (see Section 5.1);
- adjustments for accounting differences (see Section 5.2); and
- country risk adjustments (see Section 5.5.3)

Other types of adjustments are discussed in Section 5.4.

Box 11. Country Practices

Many countries take a very cautious approach in the application of comparability adjustments. Several countries have noted the "comparability adjustment paradox"—that small adjustments will not materially alter the resulting arm's length range of outcomes and large adjustments may in fact mask more fundamental differences in comparability with the controlled transaction.

Some countries also expressed concerns about whether a comparability adjustment proposed in fact improves the reliability of the comparison, or whether adjustments can add subjectivity to an analysis. In addition, a number of countries reported that they hesitate to make comparability adjustments because they believe they lack the experience or knowledge to apply them and to fully understand their ramifications.

South Africa and Australia, for example, focus more on the qualitative analysis rather than applying mechanical comparability adjustments.

Source: OECD interviews with country representatives, May 2016.

5.2 Working capital adjustments (WCA)

Working capital adjustments are the most commonly applied comparability adjustments. Working capital adjustments are typically performed when applying the TNMM, though they may be equally relevant for the application of cost-plus and resale price methods. They account for the fact that there is an opportunity cost and notional finance cost associated with the holding of working capital, represented by the net of three balance sheet items (inventories, receivables, and payables), which would not otherwise be captured in a measure of profitability[62] from the profit and loss statement. The working capital adjustment adjusts the PLI accordingly.

[62] Measures of profitability that exclude explicit interest revenues and costs (such as EBIT) are often used. Irrespective of the profit measure applied, however, the opportunity cost and notional finance cost associated with, for example, providing debtors with longer trade terms, holding additional inventory, or paying creditors early, each of which may result in forgoing potential interest income will not be measurable from the profit and loss statement.

Box 12. Working Capital Ratio

- Working capital = current assets -/- current liabilities

or

- Working capital = [accounts receivable + inventory] -/- accounts payable

The ratio shows whether a company has enough short-term assets to cover short-term debt. It gives an idea of the company's underlying operational efficiency since an increase in working capital may indicate slow collection of money owed by customers.

Where a company has a higher net working capital, it would be expected to make a higher EBIT than an otherwise similar entity with lower net working capital. At arm's length, the provision of, for example, more favourable payment terms (and thus a higher level of receivables on the balance sheet) would be expected to lead to higher prices to take account of the cost of holding the additional working capital required, or the interest income forgone as a result of holding that capital. Similarly, a company with greater inventory might in principle be expected to earn a higher EBIT than a company with lower inventory.

By performing working capital adjustments, operating profit that measures profit before accounting for explicit interest expenses or income can be corrected for the implicit interest embedded in sales and cost of goods sold to increase the comparability of the transactions.[63]

The following practical difficulties can arise when using working capital adjustments:

- What interest rate should be applied to each of the working capital items?
- The *OECD Transfer Pricing Guidelines* refer to a commercial loan rate or borrowing rate (depending on the perspective of the tested party) as interest rate to be used. The midpoint between the deposit rate and the lending rate can be a plausible estimation of the operating earnings effects of holding different levels of inventory.[64]
- The determination of the point in time for comparing the different balance sheet items (receivables, inventory, and payables) between the tested party and the comparables. For example, the levels of the different items can be compared on the last day of the (calendar) year. This timing may not give a representative level of working capital of the year if, for example, levels of working capital are seasonal. In such cases, averages might be used if they better reflect the level of working capital over the year.

The mechanical nature and apparent precision of working capital adjustments can lend a scientific veneer to the adjustment, potentially masking greater underlying questions as to the reliability of the potential comparable or the appropriateness of the adjustment in principle. WCA

[63] Baluchová, D. November-December 2013. *Determination of the Arm's Length Profitability for Commissionaires–Use of Working Capital Adjustments.*

[64] Schnorberger, S. and Schneider, M. January 2011. *Interest Rates of Working Capital Adjustments in Comparables Analysis: Small Cause, Big Effect;* Annex to Chapter III of the *OECD Transfer Pricing Guidelines* (2017).

may give rise to additional costs and complexity out of proportion to any increase in reliability or accuracy of data. An example of a WCA is provided in Appendix 9.

Box 13. Country Practices

If comparability adjustments are applied by countries and taxpayers, most will apply working capital adjustments. From countries' experience, WCAs are the most used comparability adjustments. For example, the United States commonly make WCAs.

In contrast, South Africa and New Zealand do not often make WCAs. According to these countries, these adjustments only make minor differences to the results when reliable comparables have been selected. To the extent a significant difference is calculated, this raises a concern that the difference is due to issues wider than merely a difference in the level of working capital.

Source: OECD interviews with country representatives, May 2016.

5.2.1 Working capital as a proxy for a functional adjustment

Working capital-type adjustments are also sometimes proposed as a way to make an adjustment for differences in functions, assets, and risks, in particular in relation to inventories; or in business strategies, particularly those relating to the provision of finance to customers. For example, such an adjustment may be suggested where independent manufacturers or distributors that hold inventories are proposed as potential comparables for manufacturers or distributors that do not. In such cases, the working capital adjustment may be applied to adjust both the tested party and the comparables to "zero" working capital (accounts receivable, inventory, and accounts payable, or in some cases, just inventory). However, the reliability of these kinds of adjustments must be carefully considered: the practical issues noted in the section above are equally, if not even more relevant here.

5.3 Adjustments for accounting differences

Despite the use of international accounting standards, such as IFRS by countries, there are still accounting differences between countries and between various industries or even between different entities in the same industry. An investigation of whether these differences will materially affect the reliability of the comparables is, therefore, important.[65]

In practice, different accounting standards and approaches may be adopted by entities and this can impact the financial information that is reported. Broadly, there are three types of differences:

- **Timing differences:** For example, inventory write-offs,[66] different depreciation or amortisation methods, goodwill amortisation.
- **Permanent differences:** Differences in revenue-recognition, recognition of expenses.
- **Classification differences:** The manner in which costs (such as depreciation) are measured and presented, interest, taxes, foreign exchanges, non-recurring and extraordinary items, share option expenses, differences in the accounting treatment of

[65] Gonnet, S., Starkov, V. and Maitra, M. 2014. *Comparability adjustments in the absence of suitable local comparables in emerging and developing countries.*

[66] For example, "last in, first out" system (LIFO) vs. "first in, first out" system (FIFO).

such items as rebates, capitalisation of certain expenditures, inclusion in cost of goods sold. Classification of certain items as operating/non-operating when the PLI being tested is at the operating profit level.

Due to the limited amount of detailed information, it can be difficult to make reliable adjustments for differences in accounting treatment. However, some practical solutions exist. Timing differences in accounting standards can be mitigated by using multiple year data. Some permanent differences and classification differences can be eliminated or minimised by applying the TNMM on a net margin level.

An example of an adjustment for accounting differences is provided in Appendix 10.

5.4 Other adjustments

A selection of other commonly used adjustments is set out below. It should be noted that this is not an exhaustive list of comparability adjustments.

5.4.1 Adjustments for physical characteristics

Where a CUP method has been found to be the most appropriate, it is common that adjustments may be necessary for any material differences between the physical characteristics of the goods that have been sold or transferred, and the physical properties of the goods in the uncontrolled transactions. This may often be the case with commodities. For example, a shipment of a mineral product may have different characteristics to a reference or quoted price for that product commonly used within the industry to price such products.

These types of adjustments are most reliable when they are consistent with (arm's length) industry practices, for example, it is common industry practice that an iron ore product with an iron content close to, but not exactly the same as, iron for which there is a common industry reference price could be adjusted proportionately to reflect that difference in iron content. Moreover, greater caution should be exercised the larger the size of the adjustment relative to the price being adjusted, particularly where there is a lack of reliable information can be found to guide the adjustment.

For different products, some adjustments will be able to be made more reliably than others. Some adjustments can be made with confidence; others will push toward the margin where it is not certain the adjustment can be made reliably (for example, where the direction of an adjustment is established, but the magnitude is uncertain); and for others still, there may be little confidence an adjustment could be made reliably, risking "black box" adjustments that may not withstand challenge (such as where there is no additional information on which direction to adjust or to what magnitude).

Adding further complexity, these adjustments may change over time. For example, the price penalties for impurities for a copper concentrate product may fall or disappear if concentrate markets are tight and smelters are finding it difficult to source sufficient concentrates to run their smelters efficiently.

This emphasises the importance of revenue authorities keeping up to date on industry practices. This could be either through fostering in-house expertise, their informal networks with other revenue authorities, or by purchasing expert external assistance when it is needed.

5.4.2 Contract and payment terms

Adjustments may need to be considered where there are material differences between the contract terms of the controlled transaction under review and the uncontrolled transaction(s) that are potentially comparable. For example, if the price for the purchase and sale of a commodity specifies that the shipping terms are CIF (cost, insurance, and freight) and it is determined that an arm's length price for the transaction can be determined from the quoted price for the commodity, where that quoted price is an FOB (free on board) port price, an adjustment for the different shipping terms is likely to be necessary. The difference between CIF and FOB is the point at which the ownership of and responsibility for the goods transfers from seller to buyer. In an FOB port transaction, this occurs when the shipment reaches the port of origin. With a CIF agreement, the seller retains ownership of the goods, pays the costs, and assumes liability until the goods reach the port of destination chosen by the buyer. This adjustment can be made by way of a netback adjustment (see Box 14).

Differences in payment terms can be adjusted with a working capital adjustment (Paragraph 5.2).

5.4.3 Netback approaches—adjustments for differences in the valuation point of commodities

A netback approach can be used to adjust the price of a commodity where a known arm's length price is available for the commodity at a point in the value chain which differs from the valuation point relevant for the transfer pricing analysis. Typically, the approach is used where there is a known arm's length or market price downstream of the relevant valuation point: the adjustment "nets back" the costs between the two to determine the price of the upstream product. The netback method thus identifies all the relevant costs incurred between the relevant valuation point and the market pricing point, and makes an adjustment for those costs (including an allowance for capital expenditure where relevant).

The simplest conceptual types of netback adjust for the fact that the known market price is based on the same physical product at a different location. The adjustment, therefore, takes into account the transportation cost between the two (see Box 14). This analysis needs to carefully consider the terms of the shipment, in particular the allocation of costs associated with a shipment between the parties (and whether those are commonly seen between unrelated parties).

More complex netback adjustments would be required to account for differences in the physical characteristics of the commodity, such as where a product is more or less processed than the product for which a market price is known. In such cases, it will be important to consider typical industry practices to determine a reliable netback adjustment.[67] Generally, these more complex netback adjustments will take into account the conversion ratio or yield from the known market pricing point to the relevant valuation point, as well as the treatment and refining and transportation costs (either arm's length costs or an approximation of the arm's length costs, including an allowance for capital expenditure where relevant). In some cases, an adjustment may also need to be made for the time difference between the known market pricing point and the valuation point.

[67] See also the supplementary report to this toolkit, *Addressing the Information Gaps on Prices of Minerals Sold in an Intermediate Form*

In some cases, conversion ratios and treatment and refining costs relevant for particular intermediate products may be relatively consistent and standardised. See the supplement to this toolkit on Addressing Information Gaps on Prices of Minerals Sold in an Intermediate Form for further information.

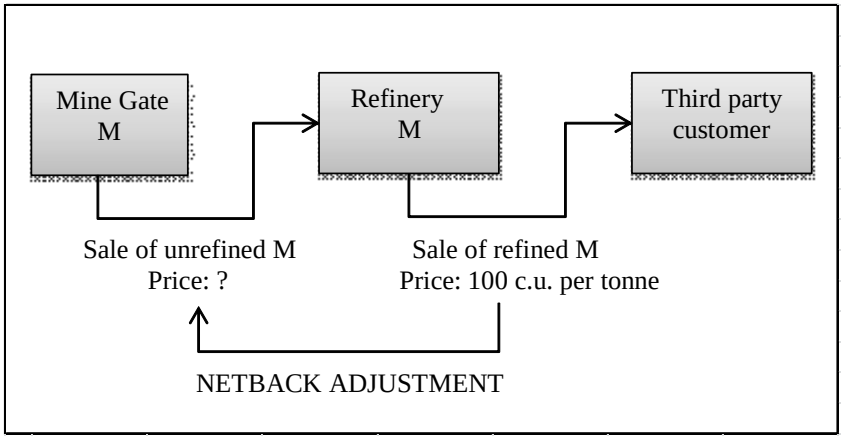
Box 14. General Example on Netback Approach

Assume the market price for refined Commodity M at the refinery is 100 currency units (c.u.) per tonne. The controlled transaction involves the sale of unrefined Commodity M at the mine gate between two associated enterprises.

Arm's length trading of unrefined Commodity

M is rare and there are no data publications that provide information on the price of unrefined Commodity M. If 1 tonne of refined Commodity M requires 2 tonnes of unrefined Commodity M (i.e. a yield of 50 percent) and an arm's length price for refining and transportation (from the mine to the refinery) amounts to 15 c.u. per tonne, the price of unrefined Commodity M can be calculated as:

(100 * 50%) - 15 = 35 c.u. per tonne.

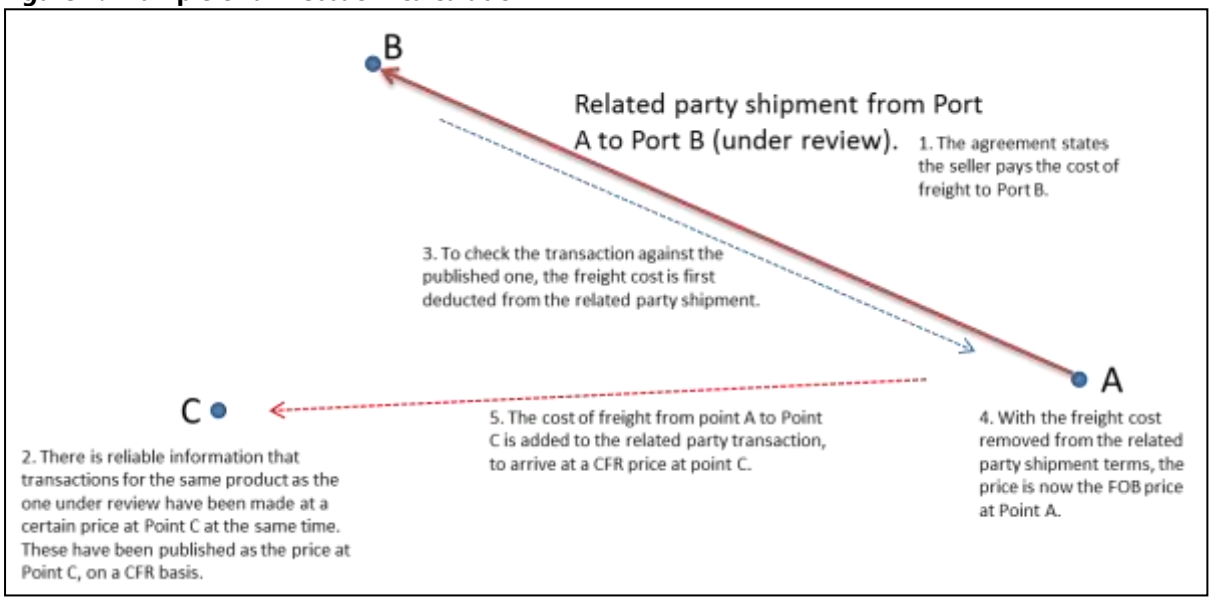


Box 15. Use of a Netback Approach for Freight Costs

This simplified example illustrates the application of a netback approach.
Revenue authorities commonly need to make adjustments to account for differences in delivery terms between the transaction under review and other transactions occurring at the time—particularly for mineral and commodity transactions. In particular, an adjustment is often required for freight charges to establish the price that would be paid for a product at a different geographical location.[68] To determine the amount of this adjustment, "netbacks" are often used by contracting parties and revenue authorities. In such cases, these are published estimates of freight costs between various ports worldwide. These costs can vary based on factors such as the product being shipped, the date of transport, and size of vessel used.

Figure 1 provides a simple example of a netback. The revenue authority typically takes the related party transaction under review and applies the netback to make it possible to compare the price against data from unrelated party transactions of materially the same product around the same time. At this stage in the process of comparability analysis, this calculation is for the purposes of analysis only (it is not done to adjust taxes paid).

Figure 1: Example of a "netback" calculation



FOB = Free On Board means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards.
CFR = Cost and Freight means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.[69]

To use the netback approach, there must be reliable freight information available that covers not only a comparable time period as the related party shipment, but also that is of the same type of cargo (for example, bulk cargo) and ship size. In many instances, the actual freight rates used by the parties may also be used if an unrelated third party has been engaged to deliver the product on their behalf.

[68] In addition, freight costs might themselves be subject of transfer pricing analysis if the shipping service is conducted between related parties.
[69] These terms are defined by the International Chamber of Commerce. See www.iccwbo.org/resources-for-business/incoterms-rules-2010/

5.5 Dealing with a lack of (local) comparables

5.5.1 General

As has been noted earlier, it may be the case that uncontrolled transactions from markets other than that of the tested party can constitute reliable comparables,[70] or may be accepted and used as the best available comparables in the absence of local market comparables. Reliance on other markets data is not limited to developing countries. This is also the case in many developed countries and even many of the OECD economies. In the search for the most reliable available comparables, potential differences in geographic markets need to be weighed against the other economically relevant characteristics.

No specific guidance on how differences in economic market conditions are to be assessed or how any potential adjustments should be conducted is currently available. Despite the widespread use and acceptance of other markets data, there is a lack of detailed practical guidance at the country, regional, and international level regarding their selection and potential adjustments. The *OECD Transfer Pricing Guidelines* and the *UN Practical Manual on Transfer Pricing* only have a general provision that comparability and, in particular, the economic-market conditions must be assessed and adjusted for where appropriate.

Where local comparables are not available, selection criteria often emphasise geographic proximity in the selection of foreign comparables. The underlying economic rationale for this is that certain geographical regions (such as the European Union) have important economic similarities and significant intra-regional trade and capital flows. These similarities in principle would be enhanced to the extent that economies are open, integrated, shared the same or similar regulations and regulatory bodies and had a similar level of economic development.[71] In Europe, for instance, reliance on regional (pan-European) comparables is widespread and has been endorsed in the Council of the European Union's Code of Conduct on transfer pricing documentation for associated enterprises in the European Union.[72] Selection based on smaller geographic regions or "sub-regions" is promoted in the case of Nordic, Iberian, and Benelux countries. A similar approach is followed in China where the tax administration accepts pan-Asian comparables samples in the absence of Chinese publicly listed comparables, preferring the pan-Asian sets of publicly listed companies to the sets of private Chinese companies. Australia and New Zealand accept comparables from each other.

[70] A distinction needs to be made between the use of "other markets data" (i.e. data from companies located in a different country to the tested party that has not been demonstrated to have satisfied the requisite standard of comparability with respect to economic circumstances) and "foreign comparables" (i.e. data from companies located in a different country to the tested party that has been demonstrated to have satisfied the requisite standard of comparability).

[71] Differences in social security and health care systems, for example, might make a significant difference when benchmarking transactions with foreign data in certain sectors.

[72] Paragraph 25: 'Member States should evaluate domestic or non-domestic comparables with respect to the specific facts and circumstances of the case. For example, comparables found in pan-European databases should not be rejected automatically. The use of non-domestic comparables by itself should not subject the taxpayer to penalties for non-compliance. 'Source: http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%209738%202006%20INIT.

However, in some cases it may be more relevant to consider selection criteria which focus on similarity of economic conditions between the foreign and local markets (either in general, or as it relates to the particular industry sector) rather than proximity *per se.* Some countries also report a practice of selecting acceptable foreign markets based on a reference to similar country credit ratings and/or economic structures (including legal and regulatory systems, dominant industries, etc.).

Other than in situations involving a comparison of the price of products with a truly global (or regional) market, such as for certain commodities, the validity of relying on foreign market data has not been comprehensively analysed. Meenan et al. (2004) investigate whether arm's length ranges differ across the European Union. Their analysis supports the assumption of homogenous profitability distributions and therefore endorses the use of pan-European data. An update of the study for the European Commission by Peeters et al. (2016) using data from 2010-2014 also concludes that pan-European searches provide for a reliable representation of local profit expectations. Conducting a similar exercise , but using company data from 2006-2014, which includes the more volatile years of the financial crisis, does, however, suggest notable heterogeneity in profitability ratios also in the European context (see Appendix 11 for the analysis).[73]

In sum, the use of foreign data—though fairly extensive in practice given the lack of local comparables—has not been studied sufficiently to draw definitive conclusions about its reliability. The available evidence is inconclusive. This report does not therefore provide a general rule about the circumstances in which the use of foreign data could be practical or should be used. It is highlighted however as an issue that would benefit from further study.

5.5.2 Adjustments for differences in geographic market

Approaches to adjustments that seek to eliminate the differences in country conditions are varied. There is currently no widely accepted method. A straightforward way to adjust for market differences would resolve many of the challenges facing transfer pricing practitioners in developing countries. In the case of many transactions, the complexity of capturing market differences does, however, seem to rule out any simple solution.

Academic studies point to the potential importance of country specific effects.[74] Potential proxies that could be relied upon to account for these differences are, however, not readily available. Practitioners, nevertheless, have to manage the ensuing uncertainty, including weighing the potential differences created by country specific effects against other differences that may be present in the best available local data (if any such data is available), and proceed in making country adjustments, where they improve the reliability of the comparison. A number of approaches to country adjustments are discussed below; these are, however, exposed to methodological challenges.

[73] Please note that the approach in Appendix 11 differs from Meenan et al. (2004) in relying, for instance, on a joint test procedure.

[74] See for example: S. Makino, T. Isobe, and C. M. Chan. 2004. "*Does Country Matter?*" Strategic Management Journal 25 (10): 1027 – 1043, and G. Hawawini, V. Subramanian, and P. Verdin. 2004. "*The Home Country in the Age of Globalization: How Much Does It Matter for Firm Performance?*" Journal of World Business 39 (2): 121–135.

5.5.3 Adjusting for country risk by adding a premium (or a discount) to the PLI

Country risk can be defined as the risk induced by the country location of a business activity rather than the fundamental nature of the activity. This risk may derive from the political or economic environment in which that business operates. Country risk is not only a transfer pricing construct, but a real variable that businesses take into account when making investments or entering into third-party transactions.

Most proposals for country risk adjustments simply seek to add a premium/discount to the comparables' results. Such risk-based adjustments are designed to account for differences in risks assumed in relation to competition, credit, foreign exchange, product liability, technological obsolesce, etc. Arguably, however, to adjust for an increase in risk, the range of results should be wider, rather than simply higher. Greater risk, while equating to a higher *profit potential,* may or may not result in higher actual profits and could in fact result in greater losses.

There are numerous ways that country risks are adjusted for in practice. These range from very complex to very simple, having relative advantages and disadvantages. One approach is by using working capital adjustments as a proxy for country risk. Büttner (2012) presents the use of the spread in countries' long-term government bond yields applied to operating assets as the basis for such an adjustment to the operating profit. Gonnet et al. (2014) suggest adjustments to operating profit based on differences in the weighted average cost of capital (WACC) of the tested party and the comparables.

It should be noted, however, that there is little empirical evidence on the reliability of the proposed approaches. Careful consideration should be given as to whether such approaches can account for differences in risk and thus in expected profitability (to the extent that they exist) for commercial ventures in different countries.

Examples of country risk adjustments are provided in Appendix 12.

5.5.4 Adjusting for country risk by using a working capital adjustment as a proxy

There is an argument that differences in working capital employed are a reflection of the differences in economically relevant factors such as country risk,[75] which would affect the pricing of transactions between independent parties. WCAs performed for local (and regional) comparables involve assessing the differential in accounts receivable and remunerating this difference with an appropriate interest rate that takes into account credit risk. In situations where the tested parties operate in a region where not only the economic circumstances, but also the underlying credit risk and interest rates are significantly different from those which exist in the region of the potential comparables, adjustments for those differences should be considered as well.

The WCA here is undertaken in two steps. The first step consists of adjusting the accounts receivable of the Country A comparables to zero and applying a Country A interest rate to the differential, which results in lower revenues for the comparables and, therefore, a lower profit margin. The second step consists of adjusting the accounts receivable of the comparables up

[75] These may manifest in terms of differences in interest rates for short term debt, differences in credit terms, and credit risks for business borrowers. See Gonnet, S et al, (2014) *Comparability Adjustments: In the absence of suitable local comparables in emerging and developing economies*

from zero to the level of the tested party in Country B and applying to them a Country B interest rate, which adjusts the revenues for the comparables and, thus the profit margins which result. Formulas on how to calculate this adjustment are provided in Appendix 13.

Box 16. Country Practices

Developing countries, often out of necessity, have to rely on foreign comparables. Country specific risk adjustments can, therefore, be of particular importance for developing countries.

In order to perform country risk adjustments, ***judgement is required***. Some countries, like Australia, tend to avoid making these adjustments. Colombia considers that it does not have enough knowledge regarding when and how to use a country risk adjustment (and in which types of transactions).

Since South Africa does not have any available local comparables, foreign comparables are always used. South Africa first selects countries with the same risk profile. If that is not possible, countries with different risk profiles are selected and, therefore, country risk adjustments are needed.

Mexico has noted that due to constraints on the number of local listed companies, it often seeks to use external comparables located in similar markets. The markets of the United States and Canada are closely connected to the Mexican market through free-trade agreements. Geographic market adjustments are often considered by Mexico when using United States or Canadian comparables. In contrast, Colombia uses United States and Canadian comparables as well, but makes no specific country risk adjustments. Under proper circumstances, Mexico can consider to undertake searches for comparables from similar economies, for example, India and Malaysia.

Canada often uses United States comparables, but because of differences in markets risk, adjustments are sometimes considered necessary. However, these types of adjustments are hard to quantify.

Source: OECD interviews with country representatives, May 2016.

6. Interpretation and Use of Data Collected, Determination of the Arm's Length Remuneration

(Step 9 of the typical process set out in Chapter III of the *OECD Transfer Pricing Guidelines*, or Section B 2.5.7 of the *UN Practical Manual on Transfer Pricing*)

A comparability analysis, and application of the most appropriate transfer pricing method, may result in a "range" of financial indicators (prices or profit margins) that are equally reliable. Recognising that transfer pricing is not an exact science, the *OECD Transfer Pricing Guidelines* states:

> "*[T]here will also be many occasions when the application of the most appropriate method or methods produces a range of figures all of which are relatively equally reliable. In these cases, differences in the figures that comprise the range may be caused by the fact that in general the application of the arm's length principle only produces an approximation of conditions that would have been established between independent enterprises. It is also possible that the different points in a range represent the fact that independent enterprises*

engaged in comparable transactions under comparable circumstances may not establish exactly the same price for the transaction."[76]

Therefore, a common practice is to calculate a range of results and determine whether the financial indicator relating to the transaction under examination is within that arm's length range. If so, it will be typically considered that the transfer price can be accepted as arm's length. If not, either the taxpayer or the tax authority must make an adjustment to taxable profit that places the relevant indicator within the range.

Transfer pricing rules in some countries may explicitly define an arm's length range and allow the use of a statistical technique in cases where an arm's length range cannot be identified. These are considered further below.

6.1 Arm's length range

An arm's length range is a range of relevant financial indicator figures (for example, price, resale margin, cost mark-up, net profit ratio or a split of profit) produced by the application of the most appropriate transfer pricing method to a number of uncontrolled transactions that are all comparable and equally comparable to the controlled transaction. Where the results of the controlled transaction(s) are within the arm's length range, it is considered that the taxpayer complies with the arm's length principle and no adjustment would be warranted.

An arm's length range should normally be relatively narrow. It is unlikely that a search conducted using a commercial database, without further refinement and manual screening, will give rise to an arm's length range, since there will often be qualitative differences which could affect the results.

It is sometimes difficult for a taxpayer or a tax administration to determine whether a range is an "arm's length range", or in fact, is a range comprising of transactions with varying degrees of comparability to the tested transaction. Tax administrations may also be concerned about the uncertainty arising where the range of results from a set of comparables is wide. Where possible therefore, consideration should be given as to whether distinctions can be objectively made between the potential comparables to eliminate those which are less reliable, for example, by using diagnostic financial ratios. See section 6.3.1, below. Where it is not possible objectively to determine the relative reliability of points in a wide range, countries may wish to consider applying statistical methods, such as measures of central tendency to narrow the range (particularly where the sample size is sufficiently large). See Section 6.2, below.

Countries may be concerned where an arm's length range is overly wide, that this might indicate unidentifiable flaws in the comparables. To address this, some countries have included a provision that limits the width of an arm's length range in certain circumstances. For example, it might be specified that the highest point in a range may not exceed a percentage (say 25 percent) of the lowest point in the range. Where this cap is exceeded, a statistical approach may be stipulated.

[76] Paragraph 3.55 of *OECD Transfer Pricing Guidelines* (2017).

6.2 Statistical approaches

The application of the most appropriate method may result in a number of financial indicators for which the degree of comparability of each to the controlled transactions, and to each other, is uncertain. This may be the case where, for example, a commercial database is used. Such a database is unlikely to provide sufficient information to allow a comparison between the underlying transactions to be carried out with a high degree of accuracy. In such cases, the transfer pricing rules may specify that a statistical technique must be used. An interquartile range is perhaps the most common statistical technique used, but many others exist. See Appendix 14 on how to calculate an interquartile range.

Box 17. Sugar Producer

Following the facts of the illustration in Box 5, Company A (the sugar producer) is most accurately characterised as a contract manufacturer, whereby the most appropriate transfer pricing method is a TNMM, using operating profit/full costs as the PLI. The database search provided 33 potential comparables. The relevant PLI ratios (operating profit/full costs) for each of the potential comparables were extracted from the database, forming a range from 1.2% to 14.7%.

It was noted that the search process identified a relatively large number of potential comparables and resulted in a relatively wide range. It was considered also that the nature of the search process resulted in some uncertainty as to the degree of comparability of each of the potential comparables, but that uncertainty could be neither precisely identified nor adjusted for. It was thus decided to employ a statistical approach that takes account of central tendency to narrow the range in accordance with the domestic transfer pricing legislation of Country A.

The statistical approach identified an interquartile range of 6.1% to 8.8%. The actual PLI of Company A was negative for the period in question. It was thus decided to adjust the taxable profit of Company A to a level that brought its operating profit/full costs ratio to an appropriate point within the range. In this case it was decided that the median point of the range be used.

6.3 Determining an arm's length range or point from a potentially comparable result

An alternative to comparability adjustments could be to select a different point in the range depending on the level of functions performed, assets used, and risks assumed. For example, it may be possible to determine the arm's length remuneration for a distributor with relatively limited functions, assets, and risks by reference to a lower point in the range of results from uncontrolled distributors. Similarly, a higher point could be applied in order to determine an arm's length remuneration for a distributor with relatively more functions, assets, and risks.

Box 18. Country Practices

U.S. regulations describe both an "arm's length range" concept and an interquartile range concept. One or the other may be used depending on the quality of the comparables (i.e. how similar are they to the controlled transaction) and the consistency of the comparables (i.e. how similar are the comparables to each other. Thus, where a range can be constructed using comparables that are both high quality and very consistent, an arm's length range may be used that includes all of the comparables and a result within the range is considered an arm's length result. In contrast, if the comparables are of a lower quality or less consistent, they may be used to construct an interquartile range that omits the lowest and highest 25% of the comparables. Results that fall outside the interquartile range are generally made to the median of the range. The adoption by the United States of these range concepts is based on a recognition that statistical methods (such as an interquartile range) may be appropriate to improve the reliability of the analysis in cases where the comparables are not of the highest quality or best consistency and material differences cannot be sufficiently accounted for using comparability adjustments that increase the reliability of the comparison. Norway also sees this trend in selecting a different point in the range as an alternative for comparability adjustments.

Source: OECD interviews with country representatives, May 2016.

6.3.1 Diagnostic (financial) ratios

In some cases, diagnostic ratios can also be used to improve the reliability of a potential set of comparables. Such ratios can be used to help distinguish between results from transactions with differing degrees of comparability, and potentially to eliminate those with a lower degree of comparability from the potential comparable set.[77] One or a combination of diagnostic ratios may be used as a kind of additional screen to narrow a range in cases where comparability defects remain in the potential comparables set that are otherwise difficult to eliminate, resulting in range that would otherwise be overly wide. Alternatively, as described in section 3.4, diagnostic ratios could be used as an alternative or supplement to screens based on typical industry classification codes, and used to determine the most reliable available comparables. For example, a ratio of marketing and advertising expenses to sales could be an indicator of the intensity of the marketing and advertising function undertaken. This ratio could then be used to refine the arm's length range based on comparables with similar levels of marketing / advertising intensity. Diagnostic ratios may also be used in other ways to help analyse and interpret data from a potential comparables set.

Other examples of diagnostic ratios that are often used include: intangibles over total assets, days of inventory (average), days receivable (average), days payable (average), turnover per employee, fixed assets over total assets, inventory over sales, operating assets to total assets, fixed assets to total sales, fixed assets to number of employees, operating expenses to sales, cost of sales to sales, and inventory to total assets.

What ratio should be used depends on various factors related to the nature of the business and, in particular, to any key value drivers identified in the business. It also depends on data availability. A proper functional analysis and good understanding of the business is helpful to analyse which diagnostic ratios may be useful, and will help to avoid "cherry picking" or

[77] See Paragraph 3.56 of *OECD Transfer Pricing Guidelines* (2017).

subjective uses of such techniques.[78] See Appendices 16, 17, and 18 on common financial ratios and acronyms and ratios measuring functions, assets, and risks.

6.4 Build-up approaches

A build-up approach divides the activities of an enterprise into a number of component parts and then determines or tests an arm's length return for each of those components. The return for the combined activity is the sum of the return for each of the components.

Box 19. Country Practices: Build-Up Approaches

The build-up approach may be applied in some circumstances by Australia. Where it is applied, it is usually in conjunction with other transfer pricing methods / approaches.

As an example, take an entity, Company X, located in Country X that assembles products from components, and then markets and sells the finished product to third-party customers. The key facts are:

- Company X purchases Component A from Company Y located in Country Y. This is the most technically complex component, which embodies intangibles that are properly allocated to Company Y.
- Company X also purchases various other components from related and unrelated suppliers.
- In its assembly operation, Company X does not utilise valuable intangibles, nor does it assume significant risk.
- Company X sells the finished products to unrelated customers. In doing so, it has a sales operation that undertakes functions, uses assets, and assumes risks that are similar to those undertaken by third-party distributors in similar circumstances. It maintains the legal ownership of finished products until the point of sale.

The comparability analysis concludes that a one-sided method is most appropriate, with Company X as the tested party. It is not possible, however, to identify independent comparable enterprises that carry out the same assembly and sales functions under the same conditions. However, information on independent assemblers and information on independent distributors are both available so a build-up approach could be considered as a way to approximate a return for both the assembly and sales functions. In this case:

- The return to the assembly function may be determined using independent assemblers or low-risk manufacturers as comparables. In this case, a cost-plus method or a return on assets basis may be appropriate.
- The return to the sales function may be determined using independent buy/sell distributors as comparables. In this case either a gross margin method basis or net margin basis (operating profit/sales or operating profit/operating expenses) may be appropriate.

The results of both of these analyses would then be combined to arrive at the total arm's length remuneration for Company X. In undertaking this kind of approach, it is essential to ensure that the analysis as a whole makes sense. It is not always the case that the sum of the parts is a reliable measure of the whole, particularly where there are significant synergistic benefits between the component parts. Care should also be taken to avoid the double counting of a reward for functions, assets, and risks, which may be common to both components. Note that where the build-up approach combines results for two links in the value chain, it will often create a need to hypothesise an internal transfer price from the first link to the second.

Source: OECD interviews with country representatives, May 2016.

[78] An example of how to calculate the diagnostic ratios is available in: Gommers, E., Reyneveld, J. and Lund, H. July/August 2007. *Pan-European Comparables Searches: Enhancing Comparability Using Diagnostic Ratios*.

7. Summary

Part II explained the role that data on comparables play in undertaking a transfer pricing analysis and in establishing, or testing, the pricing of a transaction between associated enterprises. Part II also suggested actions that might be taken to improve the accessibility of existing data and to enhance the effectiveness of comparability analyses.

PART III: APPROACHES TO APPLYING INTERNATIONALLY ACCEPTED PRINCIPLES IN THE ABSENCE OF COMPARABLES

1. Introduction

The issues discussed in Part II, and the actions suggested, are unlikely to provide a complete solution to the core problem faced by many developing countries—insufficient data to undertake a reliable comparability analysis. Developing countries consistently report this as an issue, and it was highlighted in the International Organisation's *Report to G20 Development Working Group on the Impact of BEPS in Low-Income Countries*. This is also reflected in the statement in the *UN Practical Manual on Transfer Pricing*: "It is often in practice extremely difficult, especially in some developing countries, to obtain adequate information to apply the arm's length principle."[79]

Part III thus discusses actions that might be taken to address situations where there is a lack of data. These actions include:

- Taking measures to increase the amount of primary source data available; in particular, publicly available information derived from the financial accounts of independent enterprises;
- Exploring the use of other data that may inform the arm's length nature of the transaction;
- Using safe harbours or other prescriptive rules;
- Using the transactional profit split method;
- Using anti-avoidance measures.

It should be borne in mind that, while comparability is always an essential principle that is integral to the arm's length principle and all available and reliable data should be used to the maximum extent possible, there will be many cases where data is not available to provide a well-defined measure of the arm's length price or result. In many cases, comparability data provides information that can only approximate an arm's length measure of price. This is recognised in the arm's length range discussed in Part II. In other cases, the available comparability data may do no more than inform or provide some pointers as to the arm's length situation.

This reality means that all parties need to be realistic about the use of comparability data and avoid the misperception that comparability analyses always result in a well-defined and definitive answer. It is often necessary to recognise that a comparability analysis provides only an approximate answer and that some flexibility is needed to determine a principled answer in many cases.

[79] Paragraph B.1.10.6 of *UN Practical Manual on Transfer Pricing* (2017).

Some countries, particularly those that are more experienced in transfer pricing seek to mitigate this issue by negotiating with taxpayers to arrive at a sensible, arm's length result, however others, particularly many developing countries, prefer to avoid settlement of cases in this manner. Further, many developing countries report that they do not have the capacity to negotiate in this way.[80] However, where tax administrations do negotiate with taxpayers, the available data will inform the negotiations.

2. Approaches to Increase the Availability of Primary Comparables Data

The availability of company information in the public domain is determined by a number of related factors spanning macro determinants, policy approaches, and administrative practices. The most obvious initial determinant is the relationship between the size of a country's economy and the number of companies in that country. Other structural factors may include the dominance of markets by a few large MNEs or important levels of state ownership in selected sectors and the importance of smaller, sometimes informal, economic operators in many developing countries. In addition to these structural factors, there are, however, a range of regulatory and administrative choices that affect information availability.

A country's regulatory framework, specifying obligations to prepare and file financial accounts, is at the source of any information accessed by private database providers. While there have been multiple initiatives to strengthen accounting and auditing practices, such as harmonisation efforts in the EU, ensuring general obligations for companies to prepare and lodge financial accounts that are accessible to the public, many countries still lack an appropriate framework. Frequently, only a subset of companies (listed, financial, etc.) is required to prepare and publish accounts.[81] Central registries that allow access to firm-level information may not exist or have limited functionality, complicating efforts to gather standardised information. For instance, information may not be available in electronic format or only shared in aggregated form. The convenience and cost of accessing records influences commercial database providers' data acquisition strategies. While a number of countries do not charge for accessing information, others add significant cost when obtaining bulk data. Finally, even where appropriate reporting obligations are in place and acquisition costs reasonable, a lack of compliance and effective enforcement can constrain the availability of information. Underrepresentation of a number of large European economies[82] in public databases is likely partly driven by compliance behaviour of non-traded companies and different enforcement strategies to ensure filing requirements are met. Fines for not submitting financial information also differ, even among EU member states.

While not a primary concern, the use of company information for tax purposes is a relevant consideration for ongoing and future corporate financial reform initiatives. The public debate on the transparency, corporate governance, and disclosure of companies' financial information has become increasingly forceful. The numerous stakeholders and interested parties' views cover a broad range of policy objectives and expectations. Consequently, several initiatives to strengthen accounting and auditing practices led by the EU and International Financial

[80] In this regard, support through technical assistance or from expert deployments under programmes such as the OECD/UNDP Tax Inspectors Without Borders programme could assist tax administrations.
[81] Moreover, size-based exclusion thresholds typically apply to lower compliance costs for small- and medium-sized entities.
[82] See also OECD (2015), *Measuring and Monitoring BEPS, Action 11 - 2015 Final Report,* OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris.

Institutions have sought to support reform;[83] yet important barriers remain. The importance of publicly available records for the smooth implementation of transfer pricing regimes thus should be considered as part of the introduction and/or reform of corporate reporting requirements.[84] The implementation of standardised reporting of financial information by companies may also assist with the collection and sharing of such information across national borders.

3. Approaches That Focus on the Arm's Length Nature of a Transaction

Testing the arm's length nature of a transaction can be particularly useful where sufficiently reliable comparables cannot be found. This section also describes the significance of an accurate delineation of a transaction even in the absence of comparables.

3.1. Testing the benefits received

The benefit test is a general application of the arm's length principle, but is most often encountered with regards to payments between associated enterprises for the provision of services or the right to use a valuable intangible. With regards to services and the question of when a service has been rendered, the *OECD Transfer Pricing Guidelines* state that this:

> *…should depend on whether the activity provides […] economic or commercial value to enhance or maintain its business position. This can be determined by considering whether an independent enterprise in comparable circumstances would have been willing to pay for the activity if performed for it by an independent enterprise or would have performed the activity in-house for itself.*[85]

This means that a comparability analysis into the provision of a service would include asking whether, at arm's length, any payment would be made.

A similar test will often be applicable when considering a payment for the right to use an intangible—typically in the form of a royalty. The application of the arm's length principle to transactions involving intangibles is complex (and is raised again below), but a key question to ask is whether, at arm's length, the payer of a sum in respect of a right to use intangibles would in fact be willing (or required) to pay an unrelated party for that right (either wholly or partly). Such an analysis might include asking whether the licensee actually uses or needs to use the intangible in its business; whether the licensee benefits from the use of the intangible, and, if so, to what extent (i.e. to what extent does the intangible create value for the licensee?); and whether the licensor would, at arm's length, have a right to impose a royalty for the use of the intangible in question. The answers to these questions are an important element in determining whether, or the extent to which, a payment for a royalty meets the arm's length principle.

[83] See, for example, the work of the World Bank Group's Centre for Financial Reporting Reform (http://go.worldbank.org/TJIUDM0870) and the European Commission's work on harmonising reporting requirements within the EU and in promotion of equivalent standards in third countries (http://ec.europa.eu/internal_market/accounting/index_en.htm).

[84] See Devereux, M et al (2011) *Transparency in Reporting Financial Data by Multinational Corporations*

[85] Paragraph 7.6 of *OECD Transfer Pricing Guidelines* (2017) and paragraph B.4.2.5 of the *UN Practical Manual on Transfer Pricing* (2017).

4. Safe Harbours, Fixed Margin and Other Prescriptive Approaches[86]

A safe harbour in a transfer pricing regime is a simplification measure through a provision that applies to a defined category of taxpayers or transactions and that relieves eligible taxpayers from certain obligations otherwise imposed by a country's general transfer pricing rules. One of the merits of a well-framed safe harbour is that it can reduce the need to find data on comparables and to perform a benchmarking study, in every case. General guidance on safe harbours is provided in Section E in Chapter IV of the *OECD Transfer Pricing Guidelines*.

For the purposes of this toolkit, a safe harbour refers to two types of provisions:

- A mechanism to allow a tax administration to specify an appropriate transfer pricing method, and an associated level or range of financial indicators, that it considers fulfils the requirements of the transfer pricing rules. Such a safe harbour is applicable only in respect to a defined category of transaction. ("Safe harbour for TP")

- The specification by a tax administration of a process that, when applied in respect to a defined category of transaction, is considered to produce a result that fulfils the requirements of the transfer pricing rules. ("TP Safe harbour on process")

Both types of safe harbour provide potential benefits to a tax administration and taxpayers. Safe harbours for TP are discussed first below, but it should be noted that many of the same considerations will also apply to TP Safe harbours on process.

4.1 Safe harbours for TP

A safe harbour for TP is typically specified in tax law, regulations or guidance.
Safe harbours that are enshrined in law have the benefit of providing much greater certainty to taxpayers. However, because they cannot be easily adjusted, the terms of these kinds of safe harbours must be very carefully considered.

In contrast, regulations and administrative guidance published by a tax administration typically provide greater flexibility. As policy choices will vary, administrations may wish to consider these options in their design of any safe harbours. For example, one model may be to establish the entry conditions for the safe harbour and the applicable method by regulation (to provide greater taxpayer certainty), but publish the applicable range or result in administrative guidance, to be updated periodically, to help ensure that such results continue to approximate an arm's length outcome. (See Appendix 18 for an illustration of this kind of regulation).

[86] Note that while safe harbours, fixed margins and other prescriptive approaches are addressed here as potential ways of addressing a lack of comparables, they can also be applied for other reasons, including as simplification or anti-abuse measures.

Such regulations typically specify:

- a category of transaction that falls within the safe harbour's scope;
- a transfer pricing method that is expected to be applied to such transactions;
- a level (or range of levels) of a financial indicator to be used in the application of that method. This may be, for example, a price, gross profit margin or a net profit margin, or a range of such margins.

For example, a safe harbour on method may specify that a cost-plus method is to be used, and a margin of say 5 percent to be applied when determining or testing the transfer pricing of the provision of a certain defined type of service.

Safe harbours are most suitable for transactions which, in principle, are able to be benchmarked—normally involving functions that do not use valuable intangibles or assuming significant risk. In principle, these are typically the types of function conducted by the "tested party" when a one-sided method is used.

In practice, safe harbours may be appropriate in respect to a wide range of transactions, including:

- Manufacturing, especially in cases where the manufacturer does not have a right to valuable intangibles and does not assume significant risk. This is likely to include manufacturers that are in substance toll manufacturers or contract manufacturers.
- Sales and distribution entities, including sales agents, again in cases where the function does not exploit valuable intangibles or assume significant risk.
- Provision of services that do not involve the exploitation of valuable intangibles or the assumption of significant risk.[87]

When designing a safe harbour, the definition of the category of eligible transactions will be important since the safe harbour will allow results that fall within that safe harbour to be treated as arm's length. Examinations of transactions where a safe harbour has been applied may still be necessary, but would focus on the eligibility of the transaction rather than the results achieved. Since defining appropriate descriptive eligibility criteria can be challenging and may lead to subjectivity, objective thresholds, such as particular financial ratios of the sort described in section 6.3.1 of Part II, could be used to define or supplement eligibility (or ineligibility) for the safe harbour.

Safe harbours may be either "opt-in" or "opt-out." The former refers to a safe harbour in which the taxpayer is able to choose to "opt-in" in order to benefit from it. In this type of regime, a taxpayer that chooses not to opt-in must apply the transfer pricing rules and document their application. Under an "opt-out" safe harbour, the taxpayer is required to apply the method specified in the safe harbour to any transactions that fall within its scope, unless it opts not to.

[87] See Section D of Chapter VII of *OECD Transfer Pricing Guidelines* (2017) and paragraphs B.4.5.3 to B.4.5.10 of the *UN Practical Manual on Transfer Pricing* (2017).

Where the taxpayer opts out of the safe harbour, it must apply the transfer pricing rules and document their application. A taxpayer that opts out of a safe harbour regime generally bears the burden of proof that its chosen method meets the arm's length principle. An "opt-out" regime will thus be a more straightforward option for many developing countries as it has the potential to reduce administrative costs.

In the context of this toolkit, the most significant benefit of a safe harbour on method is to eliminate the need for a taxpayer to conduct a full comparability analysis and benchmarking study in determining or testing its transfer pricing and in preparing its documentation. At the same time, a tax administration is relieved of conducting the same comparability analysis and benchmarking analysis during an audit of a specific case. Where the tax administration does conduct an audit, it would normally be restricted to verifying that the transaction in question falls within the scope of the safe harbour. A safe harbour thus provides a mechanism for applying transfer pricing rules without the need for the taxpayer and tax administration to identify data on comparable transactions in each case.

In addition, safe harbours can have a number of advantages for taxpayers and tax administrations:

- For taxpayers, they can reduce compliance costs and provide some certainty of treatment for some transactions;

- For tax administrations, they can reduce enforcement costs, releasing resources from auditing of routine and low-risk issues. The audit of such cases would typically be restricted to checking that the transaction in point meets the safe harbour conditions.

Care needs to be taken in setting a safe harbour price or margin to ensure it approximates to an arm's length price. If the price or margin is set too low, or the scope is not appropriately set, then tax revenue may be lost and MNEs will gain a tax advantage over independent enterprises. In addition, there is a risk that safe harbours may create a mechanism for tax competition between countries and tax planning by MNEs: if the safe harbour is too low, it could operate like a tax incentive regime, attracting profits (appropriately taxable elsewhere) which could be "sheltered" by the safe harbour.[88] If the price or margin is set too high, and an opt-out is available, taxpayers may choose not to adopt it; where it applies, it could create double taxation and/or requests for compensating adjustments from the counterparty's tax administration. Establishing bilaterally or multilaterally agreed safe harbours with treaty partners can substantially reduce some of these problems.

The need to set a safe harbour price or margin that approximates to arm's length terms means the tax authority will need to undertake some form of benchmarking exercise using data on comparables. Such an exercise would not normally need to be carried out more than once a year (to set the price or margin)—in some cases perhaps less frequently.

[88] See also the *OECD Transfer Pricing Guidelines* (2017) at section E.4 of Chapter IV.

This need to carry out such an exercise raises the question of the source of data. For the purpose of identifying data on comparables suitable for setting a safe harbour margin, if data is otherwise scarce or unavailable, a solution would be to use data already in the hands of the tax administration, sourced primarily from tax return information. Such information is confidential, but it should be possible to use it to identify and specify an appropriate price or range without revealing the identity of the taxpayers on which the analysis is based, or any other potentially commercially sensitive information.

In order to provide verification of the reliability of the analysis, it may be good practice to make publicly available a detailed description of the analysis, including the criteria used in selecting data for inclusion (e.g. the functional profile of the companies from which the information was derived), and/or aggregated, anonymised results. To this end, it may be useful for countries and regional and international organisations to assess the potential for building up an international or regional set of data based on data already in the hands of tax administrations, presented in an aggregated format that retains taxpayer confidentiality, and subject to transparency of process.

In order to reduce the risk of a safe harbour regime creating double taxation or double non-taxation, a number of measures may be taken:

- the tax administration should ensure that any margins contained in the safe harbour approximate to the arm's length position;
- the rules should allow taxpayers to opt out of any otherwise mandatory safe harbour where they can demonstrate an alternative arm's length outcome;[89]
- if a treaty is in place, transfer pricing set according to a safe harbour should fall within the scope of the treaty, giving access to MAP or, if relevant, measures to eliminate double taxation. Ideally, safe harbours could be agreed between treaty partners (see below);
- the safe harbour should apply only to prices that are reflected in financial accounts. It should not allow a "downward adjustment" to profit from the accounts position to the measure of taxable profit. Such an adjustment may give rise to double non-taxation;
- In cases where there are regular transactions of the same type with related parties located in one or more foreign jurisdictions, and treaties with those jurisdictions are in place, safe harbours could be agreed bilaterally or multilaterally with those treaty partners to reduce the risk of double taxation occurring.

[89] Opt out mechanisms are particularly useful where the burden of proof normally rests with the tax administration. In such cases, an opt-out clause can incorporate a reversal in the burden of proof, putting the onus on the taxpayer to demonstrate its position.

There are merits to regional or international co-operation in establishing safe harbour regimes.

- The first opportunity is to establish bilateral safe harbours, which are agreed between two or potentially more than two countries. Such safe harbours significantly reduce the risk of double taxation. These types of safe harbours are only available where existing international agreements, such as bilateral treaties, are in place, and are likely to make sense only where there are a relatively large number of transactions between associated enterprises located in both the countries party to the bilateral agreement.[90]

- The second opportunity is for regional co-operation in establishing unilateral safe harbours. Such co-operation has three potential types of benefit. The first is that an aligned approach to safe harbours may be helpful to business. The second is that an aligned approach, including aligned safe harbour pricing or margins, reduces risk of tax competition between countries. The third is that peer support between countries may be made available in designing and implementing a safe harbour.

Regional and international co-operation also provides an important opportunity to create and record data from information in the hands of tax administrations. As mentioned above, financial data in the hands of tax administrations, derived primarily from tax return information, is likely to be very useful in setting safe harbour margins. Such information from a number of countries, if shared or made publicly available, would be equally useful for countries wishing to use foreign comparables or to test the return to a foreign enterprise that is associated to a domestic taxpayer. Follow-up action on this issue is recommended in Part IV of this toolkit.

[90] A sample memorandum of understanding for competent authorities to establish bilateral safe harbours is provided in Annex I to Chapter IV of *OECD Transfer Pricing Guidelines* (2017).

Box 20. Country Practices:[91] Australia

Australia considers safe harbours can provide advantages in terms of a reduction in the compliance costs of both taxpayers and tax administrations. Whilst there will always remain a risk of misuse or manipulation, a properly constructed safe harbour should result in a net gain to the tax administration (reduced resource costs being greater than lost tax revenue) whilst reducing the compliance burden for affected taxpayers.

The Australian Taxation Office (ATO) has a "Simplified Transfer Pricing Recordkeeping" initiative in place that allows eligible entities that meet the requisite criteria to opt into applying the simplified transfer pricing recordkeeping requirements. The ATO developed safe harbour values through general industry benchmarking and risk sensitivity analyses using taxpayer-lodged information.

The eligibility criteria to apply simplified recordkeeping options are:

The taxpayers' total international related-party dealings (expense or revenue) represent less than or equal to 2.5 percent of total turnover for the taxpayers' Australian economic group;
The taxpayer does not have related-party dealings with entities in "specified countries";[92]
The taxpayer does not have related-party dealings involving royalties, licence fees or research and development arrangements;
The taxpayer has assessed its compliance with the transfer pricing rules.

Other criteria are: the taxpayer has not derived sustained losses (for three consecutive years), has not undergone a restructure within a year, and has no specific service-related party dealings greater than 15 percent of the turnover. The safe harbours are:

Distributors	EBT ratio of minimum 3%
Intra-group services	Mark-up on costs of the relevant services either: 7.5% or less for services received 7.5% or more for services provided
Management and administration services	Mark-up on costs of the relevant services of either: 5% or less for services received 5% or more for services provided
Technical services	Mark-up on costs of the relevant services of either: 10% or less for services received 10% or more for services provided
Low-level loans (inbound)	For inbound loans: Interest rate is no more than the Reserve Bank of Australia (RBA) indicator lending rate for small business; variable; residential-secured term The funds actually provided under the loan are Australian dollar funds and this is reflected in the loan agreements Associated expenses are paid in Australian dollars

Source: ATO Practical Compliance Guideline PCG 2017/2 Simplified Transfer Pricing Record Keeping Options, https://www.ato.gov.au/law/view/pdf/cog/pcg2017-002.pdf

[91] More country practices on safe harbours are provided in Appendix 19.
[92] Generally, countries considered to be facilitating aggressive tax arrangements and BEPS.

4.2 Safe harbours on TP process

A safe harbour on TP process stipulates a process that a taxpayer must undertake in order to identify an arm's length price or margin. In cases where the process is followed, the taxpayer is provided with some certainty that the resulting price or margin will be accepted by the tax authority as an arm's length price or margin (or at a minimum would provide the taxpayer with protection from penalties), but in contrast with the safe harbours for TP described in the section above, the safe harbour on process does not specify a particular transfer pricing method or range of results to be achieved. In other cases, published guidelines on processes and parameters to be met will allow taxpayers to self-assess their risk of transfer pricing audit.

The safe harbour on process may include, for example:

- A description of the characteristics of transactions that fall within the scope of the safe harbour;
- The steps of a benchmarking process—for example, the search criteria to be employed in a comparables search;
- How the identified comparable data is to be utilised—for example, by stipulating a specific range within the data set that may be treated as a proxy for an arm's length range;
- The treatment, whether by a taxpayer or a tax administration, of an actual result that falls outside the range—for example, to adjust the result to a point within the range.

4.3 Other prescriptive rules

Some countries also apply prescriptive rules to certain transactions—for example, by requiring a particular fixed margin or determining the way in which a price is to be calculated for all transactions of a particular type. Like safe harbours, such measures may be characterised by some countries as appropriate simplification measures. They may also be regarded as a valid policy response in some other situations, for instance as an anti-avoidance measure. Some countries apply more or less prescriptive rules to certain types of transactions such as those involving commodities. Typically, these kinds of rules rely on prices quoted on commodities exchanges and the like, but may prescribe certain conditions. See the discussion in Section 3.3.1 of Part II.

In designing these kinds of approaches, and depending on the nature of the problem being targeted, consideration should be given to ensuring the rules result in outcomes which approximate those which would occur at arm's length, take into account the potential for double taxation and/or double non-taxation that may be created, and where appropriate, allow for "opt-out" or similar mechanisms, as discussed above in the section on safe harbours.

Box 21. Country Practices: Brazil

The transfer pricing legislation in Brazil allows the taxpayer to choose any of the given methods, even if that results in the lowest taxable income.

Brazilian transfer pricing approach permits the use of CUP, resale price, and cost plus. Regarding the CUP method, it is the only mandatory method in the case of transactions with commodities. Brazil does not allow the use of the TNMM or profit split method.

Import and export

For goods (other than commodities), services, and rights (in general):

For import transactions:

- CUP method
- Resale Price method (20% gross profit margin or other specific margins for specific economic sectors)
    - 30% for the following sectors: chemical products; glass and glass products; pulp, paper and paper products; metallurgy.
    - 40% for the following sectors: pharmaceutical products; smoke products; optical, photographic and cinematographic equipment and instruments; equipment for dental, medical, and hospital use; extraction of oil and natural gas, and oil derivative products.
- Cost Plus method (20% mark-up margin)

For export transactions:

- CUP method
- Wholesale Price in the Country of Destination Less Profit method (15% gross profit margin)
- Retail Price in the Country of Destination Less Profit method (30% gross profit margin)
- Cost Plus method (15% mark-up margin)

For transactions with commodities, import and export:

- CUP method: The value of the commodity in the controlled transaction may be adjusted to the average market premium of the commodity, considering the differences that may exist between the standard contract of the mercantile exchange (futures exchange), taken as reference, and terms negotiated between related parties, such as: payment terms, quantities negotiated, climatic influences in the characteristics of the product, intermediation costs on purchases and sales between unrelated entities, packaging, costs of landing at the port, internal transportation, storage and customs clearance, including taxes and import duties (all in the destination market).

Brazil's transfer pricing regime is described in more detail in Part D.1 of the *UN Practical Manual on Transfer Pricing* (2017).

5. Transactional Profit Split Method

Broadly, a profit split method determines or tests the results of a transaction between related parties by reference to a division of profits between them. This division should be determined in reference to the split that would have been expected had the parties not been related. Data on the profit split found in any comparable uncontrolled transactions are relevant to such an analysis, but such data may be difficult to identify or not exist. For this reason, profit splits may be made on another economically valid basis, such as an analysis of economic and business processes that are employed to determine the respective contributions to profit of each of the parties to the transaction. Such analyses do not necessarily apply or require data from comparable uncontrolled transactions.

Where reliable comparables are not available because both (or all) parties make unique and valuable contributions (e.g. in the form of intangibles) and/or their operations are highly integrated, profit split may be the most appropriate method. Unique and valuable contributions most frequently derive from the utilisation of valuable contributions for which no comparables exist, including those from intangibles and from the assumption (including the control and management) of the key business risks. However, the selection of a profit split method purely on the basis of a lack of data (absent the factors mentioned above, i.e. where the profit split method is not the most appropriate method) risks leading to a significant departure from the arm's length outcome.

In cases where the profit split method is the most appropriate method and no external data is available as to the way in which combined profits should be split, internal data can be used for this purpose. The use of internal profit splitting factors requires knowledge of the operations of the taxpayer and the relevant related enterprises. Generally, this will involve an examination of the contribution by each of the parties to the value chain. Interviewing employees to help evaluate the significant contributions of each enterprise to the overall value chain can help determine reliable criteria on which to base the allocation of profits. Because these judgments can be subjective, it is very important to engage with the taxpayer. Since the application of this method requires detailed information, including the combined profits of the enterprises involved, information from the other associated enterprise(s) under consideration needs to be obtained.

Section C, Chapter II of the *OECD Transfer Pricing Guidelines* gives additional guidance on the use of the (transactional) profit split method.

6. Valuation Techniques

Valuation techniques may be used in a number of transfer pricing contexts. They can be a useful tool in estimating the arm's length price as a result of the sale or transfer of, for example:

- Physical capital assets (such as plant and equipment);
- Property;
- Intangible assets;
- Equity in a company.

With regard to the transfer of intangibles or rights in intangibles, income-based methods or valuation techniques based on discounted value of projected future income streams or cash flows (discounted cash flow method) that can be attributed to the intangible at issue can be useful.

Guidance on valuation techniques is provided in Section D.2.6.3, Chapter VI of the *OECD Transfer Pricing Guidelines* and in Examples 27, 28, and 29 (also, less explicitly, in Examples 16 and 17) of the Annex to Chapter VI.

With regard to large capital assets, the arm's length value of an asset may be determined according to market data, a professional valuation, or a method based on purchase price and subsequent depreciation.

With regards to the last of these, at least one country has introduced specific rules, which involve the acquisition of new or used assets by taxpayers from connected persons. The acquisition price of assets will be significant, for example, for the acquisition of assets that give rise to tax deductible depreciation. Such an approach might require the invoice for the acquisition of the asset when it was purchased from an independent third party and in the case of a used asset, the subsequent application of the decline in value already amortised since the asset was purchased. If the asset in question is sold in a different state from the one in which it was purchased, barring ordinary wear and tear, or if there is no third-party invoice, or in the case of an asset built or assembled using a number of components and thus with several invoices, a technical appraisal may be performed by a third-party expert not employed by the company.

While valuation techniques can be very useful, their reliability will depend on the assumptions used in the valuation. In addition to the valuation report, an analysis based on such techniques should therefore also consider the basis of the underlying assumptions (*e.g*. in business or project plans and forecasts and those used in the valuation report itself) as well as the sensitivity of the analysis to changes in these assumptions.

7. Advance Pricing Arrangements and Other Co-Operative Compliance Approaches

While not directly addressing the issue of a lack of comparables information, some countries find advance pricing arrangements or other co-operative compliance approaches,[93] such as advance rulings or pre-filing reviews, useful to develop greater understanding of business operations: for example, materials provided in an APA application and subsequent discussions can provide the tax administration with access to useful information, including pricing data relevant to specific sector.[94] [95] APAs can be particularly useful in complex situations where comparables information is not available, including in cases where a

[93] Co-operative compliance approaches aim to encourage co-operation and trust between tax administrations and taxpayers in order to improve compliance. Formal co-operative compliance approaches such as pre-filing or real-time reviews require a clear framework and strong governance processes and thus far, have only been implemented by tax administrations in some advanced countries. See OECD (2013), *Co-operative Compliance: A Framework: From Enhanced Relationship to Co-operative Compliance,* OECD Publishing http://dx.doi.org/10.1787/9789264200852-en. Other products with similar aims of encouraging and facilitating voluntary compliance, such as APAs or advance rulings programmes are more common.

[94] For a discussion of APAs generally, see Section F of Chapter IV of the *OECD Transfer Pricing Guidelines* (2017) and Section B.8.10. of *UN Practical Manual on Transfer Pricing* (2017).

[95] See Paragraph 4.144 of *OECD Transfer Pricing Guidelines* (2017) or paragraph C.4.4.2.4. of the *UN Practical Manual on Transfer Pricing* (2017).

transactional profit split is found to be the most appropriate method. Similar information and data may also be available when other compliance initiatives are undertaken with taxpayers belonging to the same industry, either separately or as a group.

However, APAs and other co-operative compliance products can also entail some risks. APAs are generally resource intensive, so tax administrations may wish to weigh their advantages against competing resource needs, especially in the early days of transfer pricing regimes. Where companies applying for an APA are considered to be lower risk, it may be questionable whether scarce audit resources in countries building up capacity should be focused on these cases. Moreover, APAs are unlikely to be a suitable tool for all types of transactions: most tax administrations with APA experience consider that they work best for complex transactions undertaken by generally compliant taxpayers.

8. Anti-Avoidance and Other Tax Base Protection Measures

Many countries employ general and/or specific anti-avoidance measures. Typical general anti-avoidance rules seek to defeat otherwise lawful practices that nevertheless are contrary to the intent of the law. While the topic of general anti-avoidance measures is extremely broad, and thus beyond the scope of this toolkit, a number of specific anti-avoidance provisions that may be relevant to intra-group transactions are briefly outlined below.[96]

Specific anti-avoidance rules are typically used in response to particular systemic, high-risk issues, for example, in situations where information asymmetry between taxpayers and tax administrations causes particular difficulties or to deal with a particular loophole or problem. In some cases, they may apply only where there is a high risk that the taxpayer has a tax avoidance motive; in other cases, they may be mechanical rules that apply a particular tax treatment to all transactions that meet certain objective criteria.[97] In their latter form, they can resemble the prescriptive rules described at Section 4.3.

As an example, in recognition of the difficulties often encountered in dealing with intra-group financing transactions, many countries have introduced measures to address excessive deductions of interest. Some countries (for example, the UK) have taken an approach which relies, at least to some extent, on the arm's length principle, and which in some cases may be supplemented with more targeted anti-avoidance measures. However, most countries rely more heavily on more formulaic approaches for addressing excessive interest deductions, recognising the practical difficulties and administrative capacity needed to implement a purely arm's length approach. This is reflected in the recommended approach arising from the BEPS Action 4 report.[98] This recommended an approach based on limiting the deductibility of interest based on a ratio of net interest to EBITDA.

Other measures with similar aims may be available to supplement such rules. For example, in 2009 the UK introduced a rule that limits interest deductions available to UK companies

[96] For a discussion on the design of GAARs, see Waerzeggers, C and Hillier (2016) *Introducing a general anti-avoidance rule (GAAR)—Ensuring that a GAAR achieves its purpose,* Tax Law IMF Technical Note 2016/1, IMF Legal Department, available at www.imf.org/external/pubs/ft/tltn/2016/tltn1601.pdf.

[97] These types of specific anti-avoidance measures can resemble the prescriptive rules described in Section 4.3.

[98] OECD (2015) *Limiting Base Erosion Involving Interest Deductions and Other Financial Payments*, Action 4—2015 Final Report.

belonging to large groups to no more than the total external interest expense of the group to which they belong.[99]

Where other deductible payments have been identified as a systemic concern to the tax base[100] (e.g. related party royalties, service fees, etc.), it may be helpful to consider targeted rules or benchmarks for risk assessment purposes. For instance, the application of the arm's length principle to determine a royalty paid under a licence agreement for the use of intangibles may be complicated and reliable comparable data and other information may be sparse. In such a situation, countries might consider targeted anti-abuse measures. Such measures could draw on the approach proposed for interest payments under BEPS Action 4. Approaches for addressing these kinds of payments will be considered in the toolkit on base eroding payments.

Another common type of specific anti-avoidance rule deals with controlled foreign corporations (CFCs). These kinds of rules address the risk of profit shifting to foreign subsidiaries in defined scenarios by taxing those profits in the hands of the parent company. Typically, the rules apply in cases where the foreign subsidiary is not subject to a level of taxation similar to that which applies in the parent company jurisdiction. As CFC rules respond to the risk of base erosion from parent company (residence) jurisdictions, they tend to be less relevant to developing countries and are therefore not discussed further in this toolkit.[101]

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[99] The Worldwide Debt Cap provision is in Part 7 of the Taxation (International and Other Provisions) Act 2010.

[100] The Platform for Collaboration on Tax intends to produce a toolkit on Base Eroding Payments in 2018.

[101] For a discussion on the design of CFC rules, see OECD (2015), *Designing Effective Controlled Foreign Company Rules, Action 3—2015 Final Report*, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264241152-en.

PART IV: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER WORK

1. Summary

This toolkit has been prepared in response to concerns raised by developing countries regarding the challenges they face in identifying the data needed to carry out a transfer pricing analysis as part of a tax audit. Research described in this toolkit suggests that this is indeed a significant issue. In many developing countries, the relevant information on local comparables either does not exist (or is very scarce) or is not available in a way that is usable. This toolkit describes ways in which the pool of data on potential comparables may be increased and approaches that countries can take to improve access to existing data.

It is particularly noteworthy that the accurate delineation of the transaction (prioritising substance over form) and from it, the selection of the most appropriate transfer pricing method (and, where relevant, the selection of the appropriate tested party) will often be much more important in determining arm's length prices and countering abuse than will the numerical level of the selected financial indicator, since the former are the necessary foundation to the analysis and will determine the basis for the calculation of the arm's length price (often including consideration of which party will be entitled to any residual returns).

The toolkit details the process of undertaking or reviewing a comparability analysis, including performing or reviewing a search based on commercial databases where they are available. It also describes measures that may be taken to make the most effective use of existing data, including through the use of data from foreign markets, the use of data drawn from widened search criteria, and a discussion on the use of comparability adjustments.

However, recognising that a lack of data is often a genuine problem, particularly for developing countries, this toolkit also places some emphasis on approaches to implementing transfer pricing rules that reduce the reliance on publicly available comparables' data. In particular, the paper discusses in this context the use of safe harbours, benefit tests, profit splits, and protective measures.

Transfer pricing is not an exact science and that, by their nature, transfer pricing analyses typically provide an indication of the arm's length position and an estimate of the arm's length price (e.g. a range), rather than a definitive answer. Conducting a transfer pricing analysis is essentially the application of a principle to a particular set of facts, and not a process of following a series of set steps. Flexibility and judgement are needed in order to determine a principled answer in many cases.

2. Conclusions

Despite the potential of the measures mentioned above, this toolkit recognises that they do not offer a complete and comprehensive solution. This toolkit concludes that there are three key areas that developing countries might consider particularly effective, and that could merit further development.

2.1. Safe harbours

In some contexts, safe harbours can be used to mitigate the effects of poor availability of data. This toolkit sets out a number of relevant issues for countries considering the adoption of safe harbours in their transfer pricing rules, including how best to design such approaches in order to minimise the potential for harmful outcomes, such as double taxation or tax competition. These include: setting a safe harbour price or margin in line with the arm's length measure (perhaps by reference to 'secret' data or in conjunction with other tax administrations); allowing taxpayers to opt out of the regime (though in exchange, the taxpayer would bear the burden of proof); and ensuring that transactions conducted under a safe harbour are within the scope of treaties, including relief from double taxation under the mutual agreement procedure. This toolkit also notes that developing such safe harbours in co-operation with major trading partners may have additional benefits.

2.2. Data available to tax administrations

Data relevant to comparability analyses is likely to be contained in information submitted to tax administrations, in particular the information contained in tax returns. Such information is not normally usable by tax administrations conducting audits since the information is confidential and cannot be disclosed to other taxpayers. This toolkit suggests that work should be carried out to test the feasibility of using such information in a way that maintains taxpayer confidentiality. A proposal for taking this forward is contained in paragraph 1 of Section 3 below.

2.3. A framework for the selection and application of the most appropriate method

In many cases, the accurate delineation of the transaction, and from that the selection of the most appropriate method, will have a very significant impact on the allocation of profit between countries and in countering tax avoidance, perhaps more so than the selected value of the relevant financial indicator. This toolkit suggests that developing countries are likely to gain by placing emphasis on the analysis of the transaction and the selection of the most appropriate method, and highlights the following key points:

1. **For transactions involving the sale of commodities or other property for which a comparability analysis concludes that a CUP method is appropriate, the arm's length price may be determined by reference to a quoted price where one is available**. Industry knowledge will be useful in determining how to apply the quoted price (for example, which price to use) and in making any necessary comparability adjustments. A simplified approach may assist in effective implementation. It is proposed that further work should be conducted to develop such approaches, such as those based on approaches known as the "sixth method" or "reference pricing."
2. **For transactions in which the analysis concludes that a one-sided method is most appropriate, an evaluation of the economically relevant characteristics of the**

transaction will help to make the best use of any available comparables information (which may include information from foreign markets) to determine appropriate arm's length outcomes. Furthermore, in addition to being a simplification measure, carefully constructed safe harbours may be particularly useful in helping countries to address these kinds of transactions where there is a systemic lack of comparables information. Countries may, therefore, wish to consider developing safe harbour approaches to benchmark arm's length returns to a tested party for relevant classes of transactions.

3. **For transactions in which the analysis concludes that a profit split approach is most appropriate, data on comparable transactions may not be required**.
4. **To address categories of cases in which there is a significant, systemic risk of tax loss, and data is not available or capacity is insufficient to apply one of the above methods effectively, countries might consider an anti-avoidance or protective measure**, such as that recommended as an outcome of BEPS Action 4 in relation to the deductibility of interest or other prescriptive rules.

3. Recommendations for Further Work[102]

This toolkit proposes a number of actions, for the next phase of the work begun in this toolkit, which developing countries, supported by donors and regional and international organisations, may take.

A. Increasing the pool of data

1. **Consider the feasibility of setting up an international database of data derived from information in the hands of tax administrations**, presented publicly in an aggregated format that retains taxpayer confidentiality, and subject to transparency of process. Such information could be used to establish safe harbour margins or ranges and may be useful to test the validity of using potential comparables from a specific foreign market, or to test a foreign party to a transaction. In particular,

- Individual countries could seek to identify arm's length profit margins of taxpayer enterprises operating in their countries. The analysis would be restricted to certain PLIs of independent enterprises conducting specific types of business.

- A mechanism for verifying the accuracy and relevance of the information should be considered — for example, an independent internal audit and/or publishing the processes used in collecting data.

- In addition, country data could be used to form a centralised database, accessible to tax administrations and, potentially, taxpayers. The database would consist of financial data, drawn from information available to tax administrations (including from tax returns), aggregated at the level of category of transaction in each country.

[102] Further work by the Platform for the Collaboration on Tax on these issues is contingent on additional resources being made available.

2. **Explore actions that may be taken to increase the number of countries that require the central registration of financial accounts of private and public companies**, thus providing data for inclusion in commercial and other databases.

B. Improving access to commercial databases

3. **Consider means by which developing countries can be supported in acquiring commercial databases**, and building the skills to use them effectively. For instance, capacity building and sharing of best practices on the efficient and effective use of databases could be provided as part of other technical assistance initiatives supporting transfer pricing administration, through regional co-operation, or expert deployments.

4. **Explore opportunities for regional and international co-operation for acquiring and using commercial databases**.

C. Effective use of existing data

5. **Undertake further research and spread available good practices on measures that may be taken to use existing data more effectively**. Such guidance might include the challenges, and options for using data from foreign markets, the use of data drawn from widened search criteria, and the use of comparability adjustments. There is limited evidence on the impact of geographic differences on profitability. This is an area which could benefit from further research, and the suggested mechanism for increasing the pool of data, described at point 1 above, may provide data to support such research.

Selection and application of the most appropriate method

6. **Develop further guidance and training for developing countries on the selection and application of the most appropriate method**.

Safe harbours

7. **Further develop guidance on the use of safe harbours** in the application of the one-sided methods, including best practices.

Natural resources and other commodities sectors

8. **Recognising the significance of the natural resources and other commodities sectors to many developing countries, conduct further work to refine measures such as those based on quoted prices** (such as "sixth method" approaches). This would also examine the development of a framework for adjustments such as those based on "netback" approaches. Such work would aim to develop approaches that apply the arm's length principle in a workable and efficient way.

Prescriptive, anti-avoidance or protective measures

9. **Consider the feasibility and the advantages and disadvantages of measures designed to protect the tax bases of developing countries in cases where there is both a systemic high risk of tax loss and an inability to apply transfer pricing and other measures due to lack of information or gaps in capacity**. An example of such a measure would be the proposed limitation on the deductibility of interest based on a ratio of net interest to EBITDA set out in BEPS Action 4. Similar measures that could be explored may include limitations on royalty deductions or other high-risk base eroding payments.

CASE STUDIES[103]

Case Study 1: Thermal Coal

Part A: Broad-based analysis of the taxpayer's circumstances (refer to Section 2.1)

Industry practice

Thermal coal is a bulk commodity used predominantly as an energy source for electricity generation. Thermal coal varies by grade based on energy content and levels of impurities (see related study into mineral product pricing for more information). Coal from different mines may be blended, for instance, to achieve a particular energy content, with coal products sold either directly to final users (such as electricity suppliers and cement producers) or via traders.

Tax audit

A Co is a joint venture of two multinational enterprises incorporated in Country A. A Co mines the coal and is responsible for all steps in preparing the coal for shipment to customers, from extraction to cleaning, dewatering, and drying. A Co has been producing for six years. Country A's tax administration performs a random audit of A Co. While analysing A Co's tax returns and annual reports of the past five years the auditor finds that: A Co generally returned small profits but sometimes made small losses; and A Co has a subsidiary in a low-tax jurisdiction: B Co. During desk research into A Co, the tax auditor also notes a recent news article in a financial newspaper in Country A, which describes an important visit of A Co's customers for a meeting with A Co (in Country A), including pictures of a visit to A Co's mining site.

Contractual arrangement between the parties

B Co purchases coal from A Co and takes legal title to the goods once they are ready for shipment. B Co immediately sells the coal directly to third-party customers, arranging shipments from Country A. The coal is shipped directly from Country A to the customer, i.e. B Co never takes physical delivery of shipments.

The contract between A Co and B Co states that B Co is responsible for marketing the coal. B Co is contractually obliged to purchase 100 percent of the coal produced by A Co meeting marketable standards. The taxpayer's transfer pricing documentation states that B Co has been allocated strategic/marketplace risks, inventory risk, financial risks, and transaction risks in relation to the sales of coal, each of which are stated to be economically significant, while A Co has been allocated other infrastructure and operational risks.

The contract provides for B Co to receive a service fee from A Co in the form of a 7 percent commission on sales achieved. Based on its financial statements, B Co appears to be very profitable, but has very low payroll (staff) costs.

[103] All case studies used herein are for illustrative purposes only and are necessarily presented with limited facts. The case studies do not have applicability beyond the purpose of illustrating several topics discussed in the toolkit and should not be used by taxpayers or tax administrations to interpret superficially similar cases.

Based on the contracts and the sales invoices between B Co and final customers provided by A Co to the auditor, the taxpayer has characterised B Co as an entrepreneur selling coal to third parties. To verify this, the tax auditor wants to interview the country director of A Co.

Part B: Accurate delineation of the actual controlled transaction—focus on the economically significant characteristics (refer to Section 2.2)

Evidence based on the actual conduct of the parties

Country A's tax officials interview the country director of A Co, which reveals the following:

- Because of the expertise and experience of A Co's staff in the thermal coal industry, and due to their direct involvement in the coal production process, A Co is contracted to assist B Co in finding customers.
- A Co invites customers to Country A at least once a year to review and discuss the technical specifications of current and expected future coal production, as well as expected customer demand for the coming period. These discussions are with A Co's personnel.
- During those visits, A Co also negotiates with customers on B Co's behalf regarding the final purchase terms.
- There is not much contact between the staff from A Co and B Co. Sometimes B Co advises A Co on market conditions in customer countries and arranges meetings with customers on behalf of A Co.
- B Co pays A Co a service fee (based on cost plus a mark-up of 8 percent) for its marketing support activities.
- In accordance with the offtake agreement between A Co and B Co, B Co does in fact purchase all available coal inventories from A Co. In most cases, B Co purchases the coal and instantaneously sells it to its third-party customers.
- The final purchase contracts are always between the third-party customers and B Co.

Assessment of functions, assets, and risks

Functions:

- A Co is the mining company responsible for all the steps in the coal mining process. Furthermore, A Co finds customers, maintains the market, makes strategic decisions about which markets to serve and how, negotiates all customer contracts, performs on-going contract management, and effectively manages inventory, delivery shortfalls, and excesses.
- B Co performs limited sales and marketing functions. Its activities include preparing market reports, arranging meetings for A Co, attending customer meetings to provide translation or linguistic services and other administrative tasks or coordination activities

like scheduling of deliveries and processing related paperwork. For these reasons, B Co's activities are considered routine and easily transferrable.

Assets:

- A Co owns all the equipment needed for the coal mining process. B Co does not own any assets aside from the coal inventories, which it typically disposes of to customers instantaneously. B Co rents office space.

- Long-term contracts and customer relationships could constitute marketing intangibles. However, these contracts do not specify a fixed price for the coal to be supplied (instead, pricing is renegotiated regularly based on prevailing market prices). Given the commoditisation of coal by grades, and the nature of the global market for thermal coal, the value of these intangibles is likely to be lower than it would in other industries. B Co legally owns these intangibles, but A Co has made significant contributions to the development, enhancement, maintenance, protection, and exploitation ("DEMPE") of them.

Economically significant risks relating to the thermal coal industry include:

- Strategic/marketplace risks
    - Reduced sales because there is substitution to other energy sources (such as gas or renewables).
    - Finding continuous demand from international customers.
- Infrastructure/operational risks (including inventory risk)
    - Delays or mistakes in delivery of the products, including those which result in coal that is not of a marketable grade.
    - Additional costs in relation to production.
    - Purchase cancellations or mismatches in demand and supply leading to extra inventory that requires careful stockpiling (due to its combustibility) or quick sale.
- Financial risks
    - Price fluctuations.
- Transactional risks
    - Exchange rate risks.
    - Credit risk of third-party customers.

Based on the facts established during the audit, A Co, and not B Co, controls most of these risks. A Co also has the financial capacity to assume them. On this basis, A Co, and not B Co, should be regarded as assuming these risks for the purposes of the transfer pricing analysis.

Delineating the actual transaction

Taking all factors into account, the risks contractually allocated to B Co should, in fact, be allocated to A Co when delineating the actual transaction for transfer pricing purposes. B Co's risk profile is, in fact, very limited: it does not seem to be an entrepreneur using its own expertise. Rather, B Co appears to be akin to a low-risk service provider (or *commissionnaire*) to A Co, which essentially operates under the instructions of A Co. A Co makes all key decisions affecting the business.

Comparability

To adjust the profit for A Co, the tax auditor uses B Co as the tested party. With the functional profile of B Co characterised as a service provider or c*ommissionnaire*, a search is performed to find comparables to benchmark a return for B Co. The transactional net margin method (TNMM) with (full) costs as the PLI was selected as the most appropriate transfer pricing method for the case. In this regard, much of the analysis focuses on determining the appropriate cost base in B Co since this will have a greater influence on the total transfer price than the mark-up.[104] The adjustment in Country A to the deductible sales commission expense of A Co will be equal to the difference between the result from the comparability analysis and the actual profits in B Co.

[104] The illustration in footnote 29 to the section on the cost plus method (Part II, 2.4.1) is equally relevant to the application of a TNMM with a PLI based on full costs. For convenience, the text of that footnote reads, "To illustrate: if an arm's length mark-up on costs determined through the comparability analysis is 5%, and the cost base is determined to be 600, the total transfer price will be calculated as 600 * 1.05 = 630. Thus the cost base accounts for around 95.2% of the total transfer price (600/630), and the mark-up only 4.8% (30/630)."

Case Study 1A: Thermal Coal

Case studies 1A and 1B are intended to illustrate the accurate delineation of the transaction in much the same way as Case study 1. In both Case studies 1A and 1B, however, the taxpayer's presentation of the transaction accords with the accurate delineation of the transaction confirmed by the tax administration.

Part A: Broad-based analysis of the taxpayer's circumstances (refer to Section 2.1)

Industry practice

Thermal coal is a bulk commodity used predominantly as an energy source for electricity generation. Thermal coal varies by grade based on energy content and levels of impurities (see related study into mineral product pricing for more information). Coal from different mines may be blended, for instance, to achieve a particular energy content, with coal products sold either directly to final users (such as electricity suppliers and cement producers) or via traders.

Tax audit

A Co is incorporated in Country A. A Co mines the coal and is responsible for all steps in preparing the coal for shipment to customers, from extraction to cleaning, dewatering, and drying. A Co has been producing for six years. Country A's tax administration performs a random audit of A Co. While analysing A Co's tax returns and annual reports of the past five years the auditor finds that A Co's profits broadly tracked global coal prices - when prices were high, A Co returned significant profits, when prices dropped, A Co's profits also suffered. A Co has a subsidiary in a low-tax jurisdiction: B Co. During desk research into A Co, the tax auditor also notes a recent news article in a financial newspaper in Country A, which describes an important visit of A Co's customers for a meeting with A Co (in Country A), including pictures of a visit to A Co's mining site.

Contractual arrangement between the parties

B Co provides marketing and logistics support to A Co. Depending on customer preferences, B Co may either take legal title to the goods once they are ready for shipment ("facilitated sales"), or simply act as a service provider, with title passing directly between A Co and the customer ("direct sales"). Direct sales are generally conducted on an FOB (Free on Board) basis, meaning that the buyer is responsible for arranging shipment of the coal.

In facilitated sales, which take place on a CFR (Cost and Freight) or CIF (Cost, Insurance and Freight) basis, B Co arranges shipments from Country A to the customer. In this regard, B Co will procure suitable independent shipping services and insurance, where required.

The contract between A Co and B Co states that B Co will provide A Co with marketing support services. In this respect, B Co is responsible for assisting A Co in identifying potential customers for the grades of coal A Co produces. B Co also provides A Co with regular and ad hoc market reports on coal demand, pricing and global trends.

The taxpayer's transfer pricing documentation states that A Co has been allocated strategic/marketplace risks, inventory risk, financial risks, infrastructure and operational risks in

relation to the sales of coal, each of which are stated to be economically significant. B Co is allocated limited transactional risks and risks associated with shipping of the coal (e.g. demurrage).

The contract provides for B Co to receive service fees from A Co in the form of a mark-up on marketing service costs, as well as a volume-based fee (USD2.50 per tonne) for facilitated sales.

The taxpayer has characterised B Co as a service provider to A Co. To verify this, the tax auditor wants to interview the country director of A Co.

Part B: Accurate delineation of the actual controlled transaction—focus on the economically significant characteristics (refer to Section 2.2)

Evidence based on the actual conduct of the parties

Country A's tax officials interview the country director of A Co, which reveals the following:

- Senior staff from A Co and B Co were responsible for the original investment decisions relating to the acquisition and development of A Co's mine site in Country A and conducted the necessary negotiations with the relevant government body to acquire the licence to mine the coal.

- Approximately 80% of A Co's coal sales are made under long term contracts with customers.

- A Co's staff have expertise and experience in the thermal coal industry and routinely have direct contact with customers regarding technical as well as business issues. To this end, A Co invites customers to Country A at least once a year to review and discuss the technical specifications of current and expected future coal production, as well as expected customer demand for the coming period. These discussions are with A Co's personnel.

- B Co's staff have developed close relationships with arm's length suppliers of shipping and insurance services. B Co provides A Co with reports on market conditions in customer countries and undertakes marketing and promotion activities. B Co also regularly facilitates meetings between customers and A Co staff.

- In accordance with the agreement between A Co and B Co, for facilitated sales, B Co takes title to the coal and instantaneously sells it to its third-party customers.

Assessment of functions, assets, and risks

Functions:

- A Co is the mining company responsible for all the steps in the coal mining process. Furthermore, A Co finds customers, maintains the market, makes strategic decisions about which markets to serve and how, negotiates all customer contracts, performs on-going contract management, and effectively manages inventory, delivery shortfalls, and excesses.

- B Co performs limited sales and marketing functions. Its activities include preparing market reports, arranging meetings for A Co, attending customer meetings to provide translation or linguistic services and other administrative tasks.

- B Co undertakes coordination activities, processes relevant paperwork and procuring shipping (and insurance) services from arm's length suppliers in the case of facilitated sales. For these reasons, B Co's activities are considered routine and easily transferrable.

Assets:

- A Co owns all the equipment needed for the coal mining process. B Co does not own any assets aside from the coal inventories in the case of facilitated sales, which it typically disposes of to customers instantaneously. B Co rents office space.

- Long-term contracts and customer relationships could constitute marketing intangibles. However, these contracts do not specify a fixed price for the coal to be supplied (instead, pricing is renegotiated regularly based on prevailing market prices). Given the commoditisation of coal by grades, and the nature of the global market for thermal coal, the value of these intangibles is likely to be lower than it would in other industries. B Co legally owns some of these intangibles (long term contracts for facilitated sales) and A Co owns others. In both cases however, A Co has made the most significant contributions to the development, enhancement, maintenance, protection, and exploitation ("DEMPE") of them.

Economically significant risks relating to the thermal coal industry include:

- Strategic/marketplace risks
    - Reduced demand from customers due, for example, to substitution to other energy sources (such as gas or renewables).
- Infrastructure/operational risks (including inventory risk)
    - Loss of sales, or payment of compensation due to delays or mistakes in delivery of the products, including those which result in coal that is not of a marketable grade.
    - Additional costs in relation to production.
    - Purchase cancellations or mismatches in demand and supply leading to extra inventory that requires careful stockpiling (due to its combustibility) or quick sale.
- Financial risks
    - Price fluctuations.
- Transactional risks
    - Exchange rate risks.
    - Credit risk of third-party customers.
- Operational risks relating to shipping
    - Demurrage
    - Cost overruns relating to shipping and insurance.

Based on the facts established during the audit, A Co, and B Co each control the risks they are assigned under their contractual arrangements. A Co and B Co each have the financial capacity to assume their own risks.

Delineating the actual transaction

Taking all factors into account, the risks contractually allocated to A Co and B Co are supported by the substance of the arrangement. In this regard, A Co is subject to significant risks as a producer and seller of coal, while B Co is subject to more limited risks in terms of marketing, as well as risks relating to the procurement of shipping and insurance services.

Comparability

The tax auditor confirms the transfer pricing method used by the taxpayer, in which B Co is the tested party. With the functional profile of B Co characterised as a provider of marketing services as well as a procurer of shipping and insurance services, a search is performed to find two types of comparables to benchmark the returns for B Co. The transactional net margin method (TNMM) with (full) costs as the PLI was confirmed as the most appropriate transfer pricing method for the marketing services. The higher levels of risk and autonomy involved in the facilitated sales were the reason for the volume-based remuneration being considered as the most appropriate method for remunerating B Co in relation to these transactions.

Case Study 1B: Thermal Coal

Part A: Broad-based analysis of the taxpayer's circumstances (refer to Section 2.1)

Industry practice

Thermal coal is a bulk commodity used predominantly as an energy source for electricity generation. Thermal coal varies by grade based on energy content and levels of impurities (see related study into mineral product pricing for more information). Coal from different mines may be blended, for instance, to achieve a particular energy content, with coal products sold either directly to final users (such as electricity suppliers and cement producers) or via traders.

Tax audit

A Co is incorporated in Country A. A Co mines the coal and is responsible for all steps in preparing the coal for shipment to customers, from extraction to cleaning, dewatering, and drying. A Co has been producing for six years. Country A's tax administration performs a random audit of A Co. While analysing A Co's tax returns and annual reports of the past five years the auditor finds that A Co's profits broadly tracked global coal prices - when prices were high, A Co returned significant profits, when prices dropped, A Co's profits also suffered. However it appeared that A Co's profits were somewhat insulated from global coal price fluctuations in the short term. A Co has a subsidiary in a low-tax jurisdiction: B Co. During desk research into A Co, the tax auditor also notes a recent news article in a financial newspaper in Country A, which describes an important visit of A Co's customers for a meeting with A Co (in Country A), including pictures of a visit to A Co's mining site.

Contractual arrangement between the parties

B Co is contracted to purchase 100% of coal produced by A Co each year from its existing operations in Country A. A Co is required to produce coal of a certain quality. Any additional coal production by A Co (e.g. from expanded, acquired or newly developed operations) are not covered by the existing agreement.

B Co purchases all of A Co's available, prepared coal inventories at the start of each month, paying A Co an amount per tonne for the coal calculated according to prevailing arm's length spot prices for the coal of that grade. B Co pays A Co promptly, or includes an arm's length payment of interest should B Co require longer payment terms. B Co takes title to all of A Co's produced coal each month before the coal is on-sold to customers.

B Co is responsible for identifying and negotiating with arm's length customers for the resale of the coal, aiming to ensure that all the coal produced by A Co, and subsequently purchased by B Co is on-sold to customers in a timely manner.

The contract between A Co and B Co states that A Co will provide B Co with information, assistance and reports to assist B Co's marketing efforts.

The taxpayer's transfer pricing documentation states that A Co and B Co share, to some extent, the strategic/marketplace risks, inventory risk, and financial risks. A Co is allocated the infrastructure and operational risks. Each of these risks is stated to be economically significant.

The taxpayer has characterised B Co as marketer / trader of coal and A Co as a producer of coal. To verify this, the tax auditor wants to interview the country director of A Co.

Part B: Accurate delineation of the actual controlled transaction—focus on the economically significant characteristics (refer to Section 2.2)

Evidence based on the actual conduct of the parties

Country A's tax officials interview the country director of A Co, which reveals the following:

- Senior staff from A Co and B Co were responsible for the original investment decisions relating to the acquisition and development of A Co's mine site in Country A and conducted the necessary negotiations with the relevant government body to acquire the licence to mine the coal.

- B Co takes title to all of A Co's available prepared coal inventories, paying A Co the relevant spot price, irrespective of whether B Co has ready buyers for the coal. B Co trades coal and coal-based financial products in order to match its physical supplies of coal with demand. While its primary business is in handing coal produced by A Co, B Co also handles the sales of coal sourced from other mines, particularly so that it can ensure a reliable supply for key customers.

- B Co is often able to sell the coal at a premium to arm's length spot prices - in particular through B Co's reputation as a trader for ensuring reliable supplies of coal meeting customer specifications, and by conducting sales on the spot market.

- B Co pays A Co promptly, or pays an arm's length rate of interest on longer payment terms where it has not yet on-sold the coal, or has provided credit to the customer for the coal. B Co is solely responsible for evaluating the credit of (potential) customers.

- Because of the expertise and experience of A Co's staff in the thermal coal industry, and due to their direct involvement in the coal production process, customers often want direct contact with A Co staff. To this end, A Co invites B Co staff and customers to Country A at least once a year to review and discuss the technical specifications of current and expected future coal production, as well as expected customer demand for the coming period.

- B Co's staff also includes experts on the thermal coal industry who are able to evaluate ongoing and anticipated market trends, customer needs and global supply conditions.

Assessment of functions, assets, and risks

Functions:

- A Co is the mining company responsible for all the steps in the coal mining process.

- B Co finds customers, maintains the market, makes strategic decisions about which markets to serve and how, negotiates all customer contracts, performs on-going contract management, and effectively manages inventory, delivery shortfalls, and excesses.

Assets:

- A Co owns all the equipment needed for the coal mining process. B Co owns coal inventories purchased from A Co at the start of each month and then on-sells to customers.

- Long-term contracts and customer relationships could constitute marketing intangibles. However, these contracts do not specify a fixed price for the coal to be supplied (instead, pricing is renegotiated regularly based on prevailing market prices). Given the commoditisation of coal by grades, and the nature of the global market for thermal coal, the value of these intangibles is likely to be lower than it would in other industries. B Co legally owns some of these intangibles and has itself made significant contributions to the development, enhancement, maintenance, protection, and exploitation ("DEMPE") of them.

Economically significant risks relating to the thermal coal industry include:

- Strategic/marketplace risks
    - Reduced sales because there is substitution to other energy sources (such as gas or renewables).
    - Finding continuous demand from international customers.
- Infrastructure/operational risks (including inventory risk)
    - Delays or mistakes in delivery of the products, including those which result in coal that is not of a marketable grade.
    - Additional costs in relation to production.
    - Purchase cancellations or mismatches in demand and supply leading to extra inventory that requires careful stockpiling (due to its combustibility) or quick sale.
- Financial risks
    - Price fluctuations.
- Transactional risks
    - Exchange rate risks.
    - Credit risk of third-party customers.

Based on the facts established during the audit, A Co, and B Co each control the risks they are assigned under their contractual arrangements. A Co and B Co each have the financial capacity to assume their own risks.

Delineating the actual transaction

Taking all factors into account, the risks contractually allocated to A Co and B Co are supported by the substance of the arrangement. In this regard, A Co is subject to significant risks as a producer and seller of coal, while B Co is subject to risks as a marketer, in terms of short term price fluctuations, and risks relating to customer contract performance and credit.

Comparability

The tax auditor confirms the transfer pricing method used by the taxpayer, in which a CUP method is used to price the coal sales between A Co and B Co. Discounts or premia from the CUP spot price are incorporated into the transfer price to account for different contract terms where needed (e.g. where different payment terms are provided for).

Case Study 2: Construction

Part A: Broad-based analysis of the taxpayer's circumstances (refer to Section 2.1)

Organisational structure

XYZ is a multinational group of companies (the "Group") that provides specialist consultancy, design and project-management services for large-scale engineering projects. The group's ultimate parent company and head office are located in Country F.

In 2012, the Group was engaged to provide a full range of engineering services with respect to the construction of an oil refinery in Country M. The refinery was being constructed by MNO Ltd., a petroleum company operating in Country M. In 2012, the Group set up a local subsidiary company, XYZ (M) in Country M whose function was to oversee and manage the provision of engineering services to MNO Ltd. during the construction of the refinery. It was expected that the project would last four years, with completion in 2016.

Part B: Accurate delineation of the actual controlled transaction—focus on the economically significant characteristics (refer to Section 2.2)

Contractual arrangements between the parties

XYZ (M) dealt directly with MNO Ltd. to provide these services under a contract agreed and signed in 2012. Under the terms of the contact, fees for the services are paid directly to XYZ (M), which has the responsibility for the satisfactory completion of the contract. XYZ (M) employs approximately 15 employees located in Country M, based in its offices near the site of the construction project. In order to fulfil the project, XYZ (M) engages a number of technical experts, engineers, and managers employed by a sister company XYZ (S) located in Country S. The costs of these personnel are recharged to XYZ (S) at a rate of their pay, plus a mark-up of 40 percent.

Throughout the period of the contract, XYZ (M)'s revenue consisted of the fees charged to MNO Ltd., and its costs consisted of its local costs, plus the fees paid to XYZ (S) for the provision of specialist personnel. During the course of the project there were a number of delays and, as a result, the contract with MNO Ltd. was renegotiated in 2014. The financial accounts of XYZ (M) show significant losses for all years from 2012 to 2016.

Tax audit

Country M's tax authority decided to audit the tax position of XYZ (M), including the transfer pricing in respect of the costs of provision of personnel by XYZ (S). The tax authority conducted a detailed analysis in order to fully delineate the transaction. The analysis concluded that the key issues that drive the commercial success or failure of the contract with MNO Ltd. are:

- the terms and pricing of the initial, and revised, contract with MNO, and
- the control of the Group's costs through the management of the engagement of specialist personnel, and the management of their deployment in the project.

Evidence based on the actual conduct of the parties

The audit revealed that the contract with MNO Ltd. was negotiated in 2012 by personnel from the Country F head office, although signed by the Managing Director of XYZ (M). The renegotiation of the contract in 2014 was led by personnel from the Country F head office, although employees of XYZ (M) were present at the renegotiation. The analysis also revealed that the management of the deployment of specialist experts (engineers, consultants etc.) was undertaken by project managers engaged by XYZ (S). It was concluded that the employees of XYZ (M) were not suitably qualified to manage the project, did not have the authority to manage the project, and did not in fact do so. It was further considered that the real role of XYZ (M) was to provide local logistics (including office and IT support and provision of utilities) to the engineering personnel. The audit also found that XYZ (S) had sufficient financial capacity to assume the risks associated with the project.

Delineating the actual transaction

The application of the Country M transfer pricing rules (in line with international principles) requires that in delineating the actual transaction the assumption of risks must be supported by the exercise of control and the existence of financial capacity to assume such risks. In this case, therefore, it was concluded that although XYZ (M) was contractually allocated the entrepreneurial risks, it did not exercise control over them. Instead, XYZ (S) controlled these risks. Since XYZ (S) also had the relevant financial capacity to assume these risks, they were allocated for the purposes of delineating the transaction to XYZ (S). YXZ (M) was merely providing low-risk services. This accurately delineated transaction is then used to determine and apply the most appropriate transfer pricing method, and to search for independent comparables with which to benchmark an arm's length result.

As a result, the tax administration took the view that a method based on a mark-up on cost is most appropriate, with XYZ (M) as the tested party. A benchmarking study was undertaken to find suitable comparables. The effect of the application of this method was to recognise a profit in XYZ (M) for tax purposes throughout the period of the contract. The adjustment in Country M is a reduction in the deductible fee paid by XYZ (M) to XYZ (S).

Case Study 3: Gold Production and Sales

Part A: Broad-based analysis of the taxpayer's circumstances (refer to Section 2.1)

Industry practice

Many industrial-scale gold mines operate by recovering tiny gold particles from ore using leaching or other techniques. Following initial leaching, in which gold is dissolved in a solution; it is recovered and eventually smelted to produce unrefined gold bars (doré). These bars are then taken from the mine and refined, with the refined gold sold onto world (pure) gold markets (see related study into mineral product pricing for more information).

Organisational structure

A Co in Country A is a multinational enterprise mining gold and selling unrefined gold doré to a related party in Country B (B Co) in Europe. B Co has an established refinery that has operated for over 10 years and sells the refined gold to third parties on international gold markets. Country B provides a corporate income tax exemption for gold trading. A Co's annual gross revenue is around USD 400 million and B Co's annual gross revenue is around USD 425 million. A Co and B Co are part of a multinational group with mining operations in several countries. The company is headquartered in Country C.

Part B: Accurate delineation of the actual controlled transaction—focus on the economically significant characteristics (refer to Part II, Section 2.2)

Contractual arrangement between the parties

There is a purchase agreement between A Co and B Co that stipulates B Co will buy all doré from A Co and B Co is also responsible for refining the gold and selling the refined product, taking legal title to the doré bars when they are delivered to the refinery by A Co.

B Co purchases and maintains all equipment required for the refining process and bears all payroll expenses related to the activity. In addition, B manages all operations related to refining the gold. This is reflected in its financial statements.

Under the purchase agreement, A Co is paid for the weight of the gold in each doré bar; referencing the London Bullion Market Association (LBMA) daily gold price for the day the bar is delivered to B Co. A Co pays a fee to have each bar refined, as well as environmental taxes incurred by B Co (such as to dispose of waste materials), and delivery costs. A Co receives revenue based on the sale of each doré bar, minus a "handling fee" calculated as 5.4 percent of the value of each bar, which is retained by B Co as consideration for on-selling the refined gold. B Co recognises all revenue from the refined gold sales. B Co's net revenue sources in relation to its gold sales are therefore its handling fees described above; any net gains in the price of gold between the time it purchases doré from A Co and it sells the refined gold, as well as a small margin on gold prices which it achieves on sales of commemorative gold coins to collectors.

Tax audit

Country A revenue authorities perform a tax audit at A Co. The audit confirms B Co purchases the unrefined gold from A Co and invoices and sells the finished gold bars to third-party customers. According to the financial statements of B Co, it has been recording substantial profits over recent years, primarily as driven by its contractual arrangement with A Co.

Assessment of functions, assets, and risks

B Co:

Functions:

- Refining of gold, silver, and platinum group metals;
- Selling refined precious metals to customers via over-the-counter (bilateral) sales;
- B Co manages its price risk by aiming to ensure it undertakes the refining activities as quickly as possible, generally taking only a few hours, scheduling delivery appropriately to minimise delays, and hedging arrangements when it purchases each doré bar;
- Testing and analysis of unrefined precious metals for purity, and of refined precious metals for quality assurance before sale;
- Disposing of all waste materials from the refining process;
- Producing ceremonial products from the precious metals for retail sale (such as commemorative coins).

Assets:

- All assets relating to the refining process, including buildings and equipment;
- All laboratory equipment for testing and assay.

Risks:

- Risks associated with refining the precious metals (such as losses during refining);
- Risks associated with finding customers for refined precious metals, negotiating sales, and delivering the refined product;
- Risks associated with changes in the price of precious metals between the time of the purchase of unrefined metals and the resale of refined precious metals into the market;
- Credit and counterparty risks.

Relevant A Co Functions and Assets

A Co owns all mine assets. It operates the mine and beneficiates the gold ore to produce doré according to an agreed annual production target. It procures all inputs needed to mine the ore and produce doré. In addition, it arranges (and pays for) the delivery of the doré to B Co in Europe. A Co also maintains all mine assets in good working order.

Transfer pricing method

Refined gold is a highly commoditised product with a highly liquid international market. Based on the functions, assets, and risks, B Co's core business is confirmed to be metals refining. Gold sales are important, but B Co does not need to search for customers or maintain a loyal customer base. For this reason, its gold sales are judged to be a routine function and should, therefore, be routinely remunerated using the transactional net margin method (TNMM) with sales as the PLI.

Benchmark

From B Co's financial statements, and after undertaking the comparability analysis described below, it appears that A Co is over-remunerating B Co for its functions of refining the doré and on-selling the refined gold. Country A revenue authorities benchmark B Co's profitability against other precious metals refining companies operating in Europe (see benchmark process).

This benchmarking confirms B Co's profitability from its gold business is substantially above the range of profitability of other comparable precious metals refineries.

Part C: Identification of potential comparables (refer to Part II, Section 3.4)

Benchmarking process

	Step process to identify comparable companies		**Reasons for the step**
1	Selecting the database	See Appendix 3 list of databases	Every database should be acceptable if it leads to reliable and available financial information. The region of the tested party can influence the choice of the database.
2	Geographical screening Region/country/region in country	(Pan) Europe	Since B Co is located in Europe, it would make sense to look for pan-European comparables.
3	Industry code screening	NACE Code 2441 - Precious metals production (see below)	This is based on the functional analysis. The purpose of this step is to only include companies that operate in a similar environment and perform a similar function. NACE (Nomenclature of Economic Activities) is the European statistical classification of economic activities.
4	Selecting the company size	Very large, large, medium-size companies	The purpose of this step is to eliminate very small companies or start-up companies, which are not comparable to the larger, well-established tested party. This step also eliminated inactive companies.

5	Text screening	For example: gold, refinery, refining, production, nonferrous, non-ferrous, precious, metals	The purpose of this step is to include companies that operate in a similar environment and perform similar functions.
6	Financial data availability Operating revenue/turnover	Companies for which the database did not report operating profit/loss financial data and turnover figures for at least two of the years from 2013 through to 2015 were eliminated. Companies for which the database did not report turnover figures of at least EUR 5 million in at least one of the years from 2013 through to 2015 were eliminated.	The purpose of this step is to improve reliability of the data by eliminating companies with only a single year of financial data, thereby ensuring sufficient data to calculate the ratios. This step also eliminates companies in a start-up or close down phase, which will have additional costs associated with their activities.
7	Independence screening	A+, A, A-, B+, B, B-, U	Category A (< 25%) is usually accepted. Category B (< 50%) and Category U (unknown) are only accepted if there is additional proof about the independence of these companies. Categories C and D (shareholders interest > 50%) are usually not accepted. See Appendix 7.
8	Independence screening	Manual screening	Entities with subsidiaries whose results are not included in consolidated audited financials should also be screened out
9	Selecting the type of financial accounts	Unconsolidated	Comparable financials should not be influenced by related circumstances. Consolidated accounts only exist in related circumstances. Therefore, care is necessary when consolidated accounts are used.
10	Selecting active/inactive companies	Active and unknown companies	Only active companies can be chosen as a potential comparable. Unknown companies need further screening to see if they are active or inactive.
11	Functional comparability analysis	Manual screening	After the previous steps, a manual screening of the leftover potential comparables follows. The purpose of this step is to identify companies with similar functions and characteristics of property and services, as well as similar assets and risks, business strategies, and economic circumstances to the extent this information is publicly disclosed.

Codes for gold refining[105]

Europe:

Description		**NACE code 2441**	
Digits	Purpose	Digits	Application
	Section	C	Manufacturing
1 and 2	Major group	24	Manufacturing of basic metals
3	Industry group	4	Manufacture of basis precious other nonferrous metals
4	Industry	1	Precious metals production

North America:

Description		**SIC code 3339**	
Digits	Purpose	Digits	Application
	Division	20-39	Manufacturing
1 and 2	Major group	33	Primary metal industries
3	Industry group	3	Primary smelting and refining of nonferrous metals
4	Industry	9	Primary smelting and refining of nonferrous metals, except copper and aluminium

Description		**NAICS code 331419**	
Digits	Purpose	Digits	Application
1 and 2	Determines the largest business sector	33	Manufacturing
3	Determines the subsector	1	Primary metal manufacturing
4	Determines the industry group	4	Nonferrous metal (except aluminium) production and processing
5	Determines the NAICS industries	1	Nonferrous metal (except aluminium) smelting and refining
6	Determines the national industry	9	Primary smelting and refining of nonferrous metals, except copper and aluminium

[105] Sources:
http://siccode.com/en/pages/what-is-a-classification-system
http://unstats.un.org/unsd/cr/registry/regso2.asp?Cl=17&Co=2720&Lg=1&prn=yes
http://www.cso.ie/px/u/NACECoder/NACEItems/2441.asp

APPENDIX 1

Questionnaire: Functional analysis

The questionnaire included below (from the Inland Revenue Service of the United States of America) is an example of the kinds of questions which may be relevant in undertaking a functional analysis. As is noted below, the list of questions included should not be regarded as exhaustive, nor will all questions be relevant in all cases. For example, while the questionnaire includes sections on functions, risks and intangible assets, other assets are not addressed, but may be relevant in a particular case.

This questionnaire is provided here simply as a possible starting point for the development of tailored functional analysis questionnaires suitable to the particularities of individual cases. Furthermore, it may be the case that transfer pricing documentation already prepared by the taxpayer, such as the Master File and Local File, may contain the answers to some of the questions posed below. A review of this existing information can therefore help to refine and better target the questionnaire. Existing available information and an understanding of the industry in which the taxpayers operate can be helpful in focusing the functional analysis on the most economically significant functions, assets and risks relevant to the transaction at hand.

Exhibit 4.61.3-4 (05-01-2006)[106]
Transfer Pricing Functional Analysis Questionnaire

For guidance in performing a functional analysis of a business this questionnaire sets out a list of generic questions that might be used to gain an understanding of the various functions, risks, and intangibles. The list is not intended to be exhaustive and should be tailored to suit the needs of the specific business entity being reviewed.

ANALYSIS OF FUNCTIONS

I. Manufacturing

A. Materials purchasing

1. What materials or partly finished goods are purchased?
2. From whom are purchases made?
3. Are any purchases made from related companies?
4. Where and how are raw materials purchases?
5. Who performs the purchasing function?
6. Who plans purchasing schedules?
7. Who negotiates purchasing arrangements?
8. Who approves the vendor as being of acceptable quality?
9. Do purchasing decisions require head office approval?
10. What are the other approvals required? Who makes these approvals?
11. Are any purchases made on consignment?
12. What are your major risks?

[106] Source: IRS (2006), accessed at https://www.irs.gov/irm/part4/irm_04-061-003.html#d0e2784

B. Inventory

1. Where is inventory held?
2. Who controls the levels of inventory?
3. How are inventory levels controlled?
4. Is there a computer system?
5. Are any purchases made on consignment?
6. How many days of inventory are on hand?
7. Has there ever been a case, for whatever reason, where you were stuck with excess inventory?
8. Who bears the cost of obsolete inventory?
9. What are your major risks?

C. Production equipment

1. Who determines the purchasing budget?
2. Who negotiates purchasing?
3. Who maintains the plant?
4. Who has expenditure authority for capital equipment?
5. Who writes specifications for the plant?
6. From whom is production equipment purchased?
7. Are any purchases made from related companies?
8. Do you have discretion over the equipment used?
9. Can you modify the equipment?
10. What decisions require head office approval?
11. What are the approvals required?

D. Production scheduling

1. Who is responsible for production scheduling decisions?
2. What factors enter the decisions?
3. When are the decisions made?
4. Is a computer system used?
5. What decisions require head office approval?
6. What are the approvals required?
7. What are your major risks?
8. Does your distributor buy everything you manufacture?

E. Manufacturing and process engineering

1. What products are produced?
2. Who designed the products and who owns the technology?
3. What is the manufacturing process?
4. Who developed the original process?
5. Have any improvements been made locally?
6. Is it possible to compare productivity between the subsidiaries in the group?
7. Have you ever utilized a third party to produce your products?

F. Package and labeling

1. What packaging and labeling is done?
2. Where is it done?
3. Who makes the decisions in relation to packaging and labeling?
4. Have you complete autonomy to make such decisions?

G. Quality control

1. What form does quality control take?
2. Who sets finished product quality standards and procedures?
3. Who performs the quality control and who bears the cost?

4. Who provides the equipment and techniques for quality control?
5. How much product is lost because it fails quality and control checks?
6. What are your major risks?
7. What decisions require head office approval?
8. What are the approvals required?

H. Shipping of products

1. Who pays freight charges for product in and out?
2. Who arranges shipping of products?
3. Who ships your products?
4. Where are the products shipped?
5. How are they shipped?
6. Who is responsible for the selection of shippers?
7. Who is responsible for shipping deadlines?
8. What are your major risks?
9. What decisions require head office approval?
10. What are the approvals required?

II. Research and development

1. What research and development do you carry out?
2. Is any research and development carried out on your behalf by related companies?
3. Do you commission third parties to carry out research and development on your behalf?
4. Where are products designed?
5. What input do distributors have on manufacturing, product design or product modifications?
6. How important is the development of patents in the industry?
7. What patents do you own? Describe the unique products created by each patent.
8. What unpatented technical know-how have you developed that might differentiate your products from competitors, create import cost efficiencies, or give you an advantage in increasing your market share?
9. What decisions require corporate head office approval?
10. What are the approvals required?
11. Who formulates the budget?
12. Are license agreements in existence between you and related companies or third parties?
13. Is there a cost sharing agreement in force and if so what are the details?
14. Provide a copy of the cost sharing agreement and the relevant details.

III. Marketing

A. Strategic

1. Do you carry out your own marketing?
2. Are market surveys performed? Do you monitor market demand?
3. What decisions require head office approval?
4. What are the approvals required?
5. Who are your competitors?
6. Who assesses demand in foreign markets?
7. What are the risks related to demand for your products?
8. Who formulates the marketing budget?

9. Does your distributor always buy what your manufacturer produces?
10. Has your manufacturer ever refused to fill an order?
11. Do related companies carry out marketing on your behalf?
12. Are third-party distributors used?
13. Who chooses, authorizes, and controls third-party distributors?

B. **Advertising, trade shows, etc.**

1. What forms of marketing do you utilize?
2. What forms of advertising are used? Who pays for it?
3. Are trade shows used and if so who organizes them and who pays for them?
4. Are samples provided to distributors?
5. Who produces product brochures, specification sheets, etc.?
6. What marketing assistance do you receive?
7. What decisions require head office approval?
8. What are the approvals required?

IV. Sales and distributions

A. Sales

1. How are sales made and who is involved?
2. Who issues the invoice to the customer?
3. Who issues the invoice to you?
4. Who formulates the projections and sets targets?
5. Where are sales orders received?
6. Who is responsible for the achievement of sales targets?
7. Who negotiates sales contracts? Do they operate autonomously?
8. Does your distributor always buy what your manufacturer produces?
9. How much is sold to related companies?
10. Are only finished goods shipped from here?
11. Who are your competitors?
12. What are the risks related to demand for your products?
13. What decisions require corporate head office approval?
14. What are the approvals required?
15. Are products exported? If so, who is responsible for the export function?
16. What are the major risks in selling products in foreign countries?

B. Quality control

1. What form does quality control take?
2. Who sets finished product quality standards and procedures?
3. Who performs the quality control and who bears the cost?
4. Who provides the quality control and who bears the cost?
5. How much product is rejected by customers as below standard?
6. Who bears the loss on defective products?
7. What are your major risks?
8. What decisions require head office approval?
9. What are the approvals required?

C. Freight

1. Who pays freight charges for product in and out?
2. Who arranges shipping of products?
3. Who ships your products? To where? How?
4. Who is responsible for the selection of shippers?
5. Who is responsible for shipping deadlines?

6. What are your major risks?
7. What decisions require head office approval?
8. What are the approvals required?

D. Inventory

1. Do you actually receive the goods and hold stock?
2. Where is stock held?
3. Who controls the levels of inventory?
4. How are inventory levels controlled? Is there a computer system?
5. Are any purchases made on consignment?
6. How many days of inventory are on hand?
7. Has there ever been a case, for whatever reason, where you were stuck with excess inventory?
8. Who bears the cost of obsolete inventory?
9. What are your major risks?

E. Installation and after-sales services

1. Do you install your products?
2. Do you provide after-sales services? If so, describe the service.
3. Does any company carry out product repairs and who bears the cost?
4. Who bears the cost of installation and after-sales service?
5. Do you provide product guarantees?
6. Who bears warranty costs?

V. Administration and other services

A. General administration

1. Is there a complete administration function?
2. Do related companies perform any administration for you?
3. What decisions require corporate head office approval?
4. What are the approvals required?
5. Who is responsible for administrative codes of practice?

B. Pricing policy

1. Who determines the product pricing?
2. What is the pricing policy for the various goods and services?
3. What are your major risks?
4. What decisions require corporate head office approval?
5. What are the approvals required?

C. Accounting

1. What accounting functions are carried out? By whom?
2. Where are the financial reports prepared?
3. What decisions require head office approval?
4. What are the approvals required?
5. Is a bank account maintained? For what purpose?
6. Who has check signatory authority? What are the authority limits?
7. Do you bear the credit risk on sales to customers?
8. Who pays product liability insurance premiums?
9. Who arranges and pays for other insurance?

D. Legal

1. Who is responsible for legal matters?
2. What decisions require head office approval?
3. What are the approvals required?

E. Computer processing

1. Is computer processing and programming done here? If not, by whom and where?
2. Who developed the software and is any charge made for it?
3. Who has expenditure authority for capital equipment?
4. What decisions require head office approval?
5. What are the approvals required?

F. Finance/loans/credit

1. Are there any intercompany loans or long-term receivables and, if so, is interest charged?
2. What trade credit terms are received and given?
3. Is interest paid or charged if credit periods are exceeded?
4. Who is responsible for borrowing requirements?
5. What are your major risks?
6. What decisions require head office approval?
7. What are the approvals required?

G. Personnel

1. Are there any compensation to or from overseas affiliates?
2. What positions do they hold in the company?
3. What training do you provide your employees?
4. What is the length of the training period?
5. Is there on-the-job training?
6. Where is management training done?
7. What is the staff turnover rate?
8. Are all employees on your payroll?
9. Who is responsible for the employment of staff?
10. What decisions require head office approval?
11. What are the approvals required?

H. Use of property / leasing

1. Is property owned or leased from affiliates?
2. Do you lease property to affiliates?
3. Who is responsible for this function?

VI. Executive

1. To whom does the general manager report?
2. Does anyone report to the parent company besides the general manager?
3. Who is responsible for dealing with government agencies?
4. What are some of the regulatory requirements?
5. Has the parent ever told you to use more procedures than you have developed?
6. How does manufacturing site selection occur?
7. Where does the initial impetus in relation to corporate decisions come from?
8. What decisions require head office approval?
9. What are the approvals required?

ANALYSIS OF RISKS

I. Market risk

1. What are the market risks?
2. Do you bear the market risks? If not, who does?
3. How significant are the market risks?

II. Inventory risk

1. Does inventory become obsolete?
2. Who bears the cost of obsolete inventory?
3. Do you provide warranties in relation to finished goods?
4. Who bears the cost of returns under warranty?

III. Credit and bad debt risk

1. What credit terms are given and received?
2. Do you bear the cost of bad debts? If not, who does?
3. Is this a significant risk?

IV. Foreign exchange risk

1. Are you exposed to foreign exchange risk? If so, explain the risks.
2. How significant is the risk?
3. What steps do you take to minimize foreign exchange risk?
4. Do you have a manual that outlines your procedures/policies for dealing with foreign exchange risk? If so, provide a copy.
5. Do you engage in hedging of foreign exchange risk? If so, provide an explanation of your hedging activities.

ANALYSIS OF INTANGIBLES

I. Manufacturing

A. **Research and development**

1. Have you developed your own products? Are they unique?
2. Have you developed manufacturing processes?
3. How important are these processes to your business? Are they unique?

B. **Manufacturing processing/technological know-how**

1. Do you possess technological know-how?
2. If so, what is its nature?
3. How important to your business is the know-how?
4. Is the know-how unique?

C. **Trademarks/patents, etc.**

1. Do you own any trademarks/patents?
2. How significant are they to your business?

D. **Product quality**

1. Within your industry, and as compared to your competition, how would you rate the quality of your product?

E. **Other**

1. Are there any other manufacturing intangibles?
2. Request copies of all licensing agreements.

II. Marketing

A. **Trademarks/trade names**

1. Do you own any trademarks/trade names?
2. How significant are they to your business?

B. **Corporate reputation**

1. Do you consider that you have a corporate reputation?
2. What is the nature of this reputation?

3. Is corporate reputation significant in your business?

C. **Developed marketing organization**

1. Do you have a developed marketing organization?

D. **Ability to provide service to customers**

1. Within your industry, and as compared to your competitors, how would you rate the quality of the services you provide to customers?

APPENDIX 2

Characterisation based on typical business models

The functional analysis of the tested party is normally summarised by giving it a characterisation based on typical business models. For example, at either extreme, an entity performing sales functions may be "characterised" as:

- a fully-fledged distributor, performing full buy-hold-sell functions, including marketing and sales, having the relevant associated assets such as a warehouse, inventory and a logistics system, and assuming the relevant risks associated with these functions and assets, or

- a sales agent, selling on consignment, performing limited sales functions on behalf of another entity, having limited or no assets as it does not take title to the goods, and assuming limited risks.

Entities engaged in manufacturing activities could be characterised as:

- a fully-fledged manufacturer, undertaking full manufacturing functions; having the associated assets, including property, plant and equipment, as well as inventory; and assuming all the associated risks. These activities could potentially include research and development (particularly with regards to the manufacturing process) and would generally encompass forecasting demand, procurement of raw materials and other inputs, production scheduling, etc.

- a contract manufacturer, which manufactures to order, or

- a toll manufacturer, which essentially performs manufacturing services since it manufactures to order, but does not procure or own inputs, work in progress or outputs.

While these "shorthand" characterisations can be very useful in helping to determine the most appropriate method or PLI, and in directing the search for comparables, a characterisation based on a vague functional analysis may produce misleading results. The characterisation is just a label used for convenience and should not be regarded as a substitute for the functional analysis.

APPENDIX 3

Examples of commercial databases used for transfer pricing

Annex taken from World Bank Group (2016): *"Transfer Pricing and Developing Economies: A handbook for policy makers and practitioners."*

Note: List is not intended to be exhaustive. There are a range of other providers. Moreover, this list should not be regarded as an endorsement of, or recommendation to use any of the databases or database providers included herein.

Provider	Database	Geographical Coverage	Content Coverage
Bloomberg [107]	Bloomberg Reference Data Services	Worldwide	Financial markets data
Bureau van Dijk [108]	Osiris	Worldwide	Company financial information (listed)
	Orbis	Worldwide	Company financial information (private and listed)
	Amadeus	Europe	As above
	Oriana	Asia-Pacific	As above
	Aida	Italy	As above
	Bel-First	Belgium-Luxembourg	As above
	Dafne	Germany	As above
	Diane	France	As above
	Fame	UK and Ireland	As above
	Icarus	US and Canada	As above
	Odin	Nordic and Baltic	As above
	Mint Korea	Korea	As above
	Reach	Netherlands	As above
	Ruslana	Russia, Ukraine and Kazakhstan	As above
	Sabi	Spain and Portugal	As above
	Sabina	Austria	As above
	Zephyr	Worldwide	Mergers and acquisitions information
Capital Market Publishers India	Capitaline TP[109]	India	Company financial information (private and listed)
Centre for Monitoring Indian Economy[110]	Prowess[111]	India	Company financial information (private and listed)
Dun & Bradstreet	Company360[112]	Australia	Company financial information (private and listed)
	Mergent Million Dollar Directory[113]	US	Company information (private and

[107] www.bloomberg.com/eprofessional/
[108] www.bvdinfo.com/en-gb/products/product-selector/product-recommendations
[109] www.capitaline.com/demo/tp.asp
[110] www.cmie.com/
[111] www.cmie.com/kommon/bin/sr.php?kall=wcontact&page=prowess
[112] www.company360.com.au/

			listed)
Hedge Fund Research	HFR Database	US	Hedge fund information
IBISWorld	IBISWorld	Australia	Company financial information (private and listed)
InfoCredit	Teigil	Poland	Company financial information (private and listed)
Intangible Spring[114]	Intangible Spring	Worldwide (US & Canada)	Invotex Group[115]
Interfax	SPARK	Russia, Ukraine, and Kazakhstan	Company financial information (private and listed)
Invotex Group[116]	Royalty Connection	Worldwide (US)	Intangibles license agreements (sourced from US SEC)
KIS-Line[117]	KIS-Line	South Korea	Company financial information (private and listed)
Kompass[118]	Kompass	Worldwide	Company information (private and listed)
ktMine[119]	ktMine IP[120]	Worldwide (US)	Intangibles license agreements and royalty rates
Moody's Analytics[121]	RiskCalc Plus	Worldwide (29 models)	Risk of default models (credit score)
Rimes[122]	Rimes	Worldwide	Financial markets data, commodities, hedge funds and properties/REITs
RoyaltyRange[123]	RoyaltyRange	European	Intangibles license agreements and royalty rates
Onecle[124]	Business Contracts	US	Business contract filings (SEC)
Royaltystat[125]	Licence Agreements Database	Worldwide (US)	Intangibles license agreements (sourced from US SEC)
RoyaltySource	RoyaltySource	Worldwide (US)	Intangibles license agreements (sourced from US SEC)
Standard and Poor's	Capital IQ - Financials[126] Compustat - North America Compustat Global Credit Analytics	Worldwide North America Worldwide Worldwide	Company financial information (private and listed) Company financial information (listed) Company financial information (listed) Risk of default models (credit score)

113 www.mergent.com/solutions/private-company-solutions/million-dollar-directory-(mddi)
114 www.intangiblespring.com/pages/data
115 www.royaltyconnection.com
116 www.royaltyconnection.com/
117 www.en.kisline.com/
118 http://rs3.kompass.com/en
119 www.ktmine.com/
120 www.ktmine.com/ip-data/
121 www.moodysanalytics.com/riskcalc2013
122 www.rimes.com/
123 www.rangeroyalty.com/
124 www.onecle.com/
125 https://www.royaltystat.com/
126 https://www.capitaliq.com/home/what-we-offer/information-you-need/financials-valuation/financials.aspx

Thompson Reuters[127]	Dealscan[128]	Worldwide	Financial transactions data (loans)
	Eikon	Worldwide	Financial markets data
	Lipper	US	Fund management data
	Worldwide public company data	Worldwide	Company financial information (listed)
	Worldwide private company data	Worldwide	Company financial information (private and listed)
	Worldwide intangibles data	Worldwide	Intangibles license agreements and royalty rates

[127] www.tax.thomsonreuters.com/products/brands/onesource/onesource-transfer-pricing/comparable-databases
[128] www.loanconnector.com/dealscan/LPC_WEB_DS_SecurID.html

APPENDIX 4

Countries with available data from potential comparables meeting minimum requirement for application of the arm's length principle[129]

# of independent records with revenue and net margin information	Countries	Quantity
=<10	Afghanistan (AF), Albania (AL), Algeria (DZ), Andorra (AD), Angola (AO), Anguilla (AI), Antigua and Barbuda (AG), Armenia (AM), Aruba (AW), Bahamas (BS), Barbados (BB), Belize (BZ), Benin (BJ), Bhutan (BT), Brunei Darussalam (BN), Burkina Faso (BF), Burundi (BI), Cambodia (KH), Cameroon (CM), Cape Verde (CV), Central African Republic (CF), Chad (TD), Comoros (KM), Congo (CG), Congo, Democratic Republic of (CD), Costa Rica (CR), Côte d'Ivoire (CI), Cuba (CU), Curaçao (CW), Djibouti (DJ), Dominica (DM), Dominican Republic (DO), East Timor (TL), El Salvador (SV), Equatorial Guinea (GQ), Eritrea (ER), Ethiopia (ET), Fiji (FJ), Gabon (GA), Gambia (GM), Georgia (GE), Gibraltar (GI), Grenada (GD), Guatemala (GT), Guinea (GN), Guinea Bissau (GW), Guyana (GY), Haiti (HT), Honduras (HN), Kiribati (KI), Korea, Democratic People's Republic of (KP), Kosovo (KV), Kyrgyzstan (KG), Lao People's Democratic Republic (LA), Lesotho (LS), Liberia (LR), Libya (LY), Liechtenstein (LI), Macao (MO), Madagascar (MG), Malawi (MW), Maldives (MV), Mali (ML), Mauritania (MR), Micronesia, Federated States of (FM), Monaco (MC), Mongolia (MN), Mozambique (MZ), Myanmar/Burma (MM), Namibia (NA), Nauru (NR), Nicaragua (NI), Niger (NE), Palau (PW), Papua New Guinea (PG), Paraguay (PY), Rwanda (RW), Saint Kitts and Nevis (KN), Saint Lucia (LC), Saint Vincent and the Grenadines (VC), Samoa (WS), San Marino (SM), Sao Tome and Principe (ST), Senegal (SN), Seychelles (SC), Sierra Leone (SL), Sint Maarten (SX), Solomon Islands (SB), Somalia (SO), South Sudan (SS), Sudan (SD), Suriname (SR), Swaziland (SZ), Tajikistan (TJ), Tanzania, United Republic of (TZ), Togo (TG), Tonga (TO), Turkmenistan (TM), Tuvalu (TV), Uganda (UG), Uzbekistan (UZ), Vanuatu (VU), Vatican City, State/Holy See (VA), Yemen (YE), Zambia (ZM)	106
10-100	Azerbaijan (AZ), Bahrain (BH), Belarus (BY), Bolivia (BO), Botswana (BW), Ecuador (EC), Ghana (GH), Iran, Islamic Republic of (IR), Iraq (IQ), Jamaica (JM), Kenya (KE), Lebanon (LB), Marshall, Islands (MH), Mauritius (MU), Moldova, Republic of (MD), Montenegro (ME), Morocco (MA), Nepal (NP), Nigeria (NG), Palestinian Territories (PS), Panama (PA), Qatar (QA), Syrian Arab Republic (SY), Trinidad and Tobago (TT), Tunisia (TN), United Arab Emirates (AE), Uruguay (UY), Venezuela (VE), Virgin Islands (British) (VG), Zimbabwe (ZW)	30
100-1000	Argentina (AR), Bangladesh (BD), Bermuda (BM), Brazil (BR), Cayman, Islands (KY), Chile (CL), Cyprus (CY), Egypt (EG), Hong Kong (HK), Indonesia (ID), Israel (IL), Jordan (JO), Kazakhstan (KZ), Kuwait (KW), Macedonia (FYROM) (MK), Malta (MT), Mexico (MX), New Zealand (NZ), Oman (OM), Pakistan (PK), Peru (PE), Philippines (PH), Saudi Arabia (SA), Singapore (SG), South Africa (ZA), Sri Lanka (LK), Switzerland (CH), Vietnam (VN)	28
1000-10,000	Australia (AU), Austria (AT), Canada (CA), Denmark (DK), Iceland (IS), India (IN), Ireland (IE), Lithuania (LT), Luxembourg (LU), Netherlands (NL), Slovenia (SI), Taiwan (TW), Thailand (TH)	13
10,000-100,000	Belgium (BE), Bosnia and Herzegovina (BA), China (CN), Colombia (CO), Croatia (HR), Czech Republic (CZ), Estonia (EE), Finland (FI), Germany (DE), Greece (GR), Japan (JP), Korea, Republic of (KR), Latvia (LV), Malaysia (MY), Poland (PL), Serbia (RS), Sweden (SE), Turkey (TR), United Kingdom (GB), United States of America (US)	20
>=100,000	Bulgaria (BG), France (FR), Hungary (HU), Italy (IT), Norway (NO), Portugal (PT), Romania (RO), Russian Federation (RU), Slovakia (SK), Spain (ES), Ukraine (UA)	11

[129] Please note that this table summarises information shared voluntarily by several private database providers for the year 2013. It may therefore not be a complete summary of globally available information.

APPENDIX 5

Most common types of classification codes

System	Code	Description	Website
Standard Industrial Classification	SIC	Created in the 1930s to standardise data in the United States. It is the most widely used reference guide for comparability purposes.	www.sec.gov/info/edgar/siccodes.htm
North American Industry Classification System	NAICS	Six-digit industry grouping system developed in co-operation between the United States, Canada, and Mexico.	www.census.gov/eos/www/naics/index.html
Nomenclature of Economic Activities	NACE	Four-digit statistical classification of economic activities in the European Union. Taken from its name in French, *Nomenclature statistique des activités économiques dans la Communauté européenne.*	http://ec.europa.eu/competition/mergers/cases/index/nace_all.html
International Standard Industrial Classification of All Economic Activities	ISIC	Issued by the United Nations Statistics Division.	http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27

APPENDIX 6

A selection of other types of classification codes

The following table sets out a selection of other types of classification codes that are available in various countries. Note that the inclusion of these codes should not be taken as implying that the tax administration or taxpayers in the country concerned use the indicated classification system exclusively, or indeed at all in any particular case. For example, the South African Revenue Service regularly uses both the Standard Industrial Classification (SIC) codes and the Statistical Classification of Economic Activities in the European Community ("NACE") code in its transfer pricing analyses.

System	Country	Abbreviation (if any)	Website
Standard Industrial Classification	Australia and New Zealand	ANZSIC	www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0
Industry Classifications	Canada		www.statcan.gc.ca/eng/concepts/industry
Standard Industrial Classification Codes	South Africa		www.statssa.gov.za/classifications/codelists/Web_SIC7a/SIC_7_Final_Manual_Errata.pdf
Standard Industrial Classification of Economic Activities	United Kingdom	UK SIC	http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/standard-industrial-classification/index.html
Standard Industrial Classification	Singapore	SSIC	www.singstat.gov.sg/methodologies-standards/statistical-standards-and-classifications/SSIC
Business Industry Classification Code	New Zealand		http://businessdescription.co.nz/#/home
Business Industry Codes	Australia		www.ato.gov.au/uploadedFiles/Content/MEI/downloads/TP39938NAT18272014(2).pdf
Industrial Uniform Classification	Colombia	CIIU Rev. 4 A C	www.dian.gov.co/descargas/normatividad/2012/Resoluciones/Resolucion_000139_21_Noviembre_2012_Actividades_Economicas.pdf
Economic Activity Codes	Chile		http://www.sii.cl/catastro/codigos.htm
Economic Activity Codification	Mexico	SCIAN-México	www.inegi.gob.mx/inegi/contenidos/espanol/clasificadores/clasificador%20de%20actividad%20economica.pdf
	Guatemala		http://portal.sat.gob.gt/sitio/static/actividades.html
National Classification of Economic Activities	Spain	CNAE-2009	www.ine.es/jaxi/menu.do?type=pcaxis&path=/t40/clasrev&file=inebase

APPENDIX 7

Independence criteria[130]

The *Bureau van Dijk Independence Indicators* are noted as **A, B, C, D,** and **U**, with further qualifications. It should be noted that this appendix only provides a brief summary of the independence indicators applied by Bureau van Dijk. Further information on the meaning and relevance of these indicators is available. For example, the legal character of the identified shareholder(s), e.g. whether they are natural persons or corporations, may be relevant to judgements as to the acceptability of a particular potential comparable.

Indicator A

Definition: Attached to companies with known recorded shareholders none of which having more than 25% of direct or total ownership.

This is further qualified as A+, A or A-:

- **A+:** Companies with 6 or more identified shareholders (of any type) whose ownership percentage is known
- **A:** As above, but includes companies with 4 or 5 identified shareholders
- **A-:** As above, but includes companies with 1 to 3 identified shareholders

The logic behind these qualifiers is that the probability of having missed an ownership percentage over 25% is the lowest when the greatest number of shareholders is known, so that the company's degree of independence is more certain.

The qualification **A+** is also attributed to **A** companies in which the sum of direct ownership links (all categories of shareholders included) is over 75%. Which means that those companies cannot have an unknown shareholder with 25% or more and can thus not be identified with an Independence Indicator other than **A**.

Please note that BvD also gives an **A-** notation to a company that is mentioned by a source (*Annual Report, Private Communication* or *Information Provider*) as being the Ultimate Owner of another company, even when its shareholders are not mentioned.

As it can been seen from the above definitions, the qualifications "+" or "-" do not refer to a higher or a lower degree of independence but to the *degree of reliability* of the Indicator that is attributed.

In BvD terminology "**A**" companies are called "*Independent companies*".

[130] Source: Bureau Van Dijk https://webhelp.bvdep.com/Robo/BIN/Robo.dll?project=amadeusneo_EN&newsess=1

Indicator B

Definition: Attached to companies with a known recorded shareholder none of which with an ownership percentage (direct, total or calculated total) over 50%, but having one or more shareholders with an ownership percentage above 25%.

The further qualification as **B+, B** and **B-** is assigned according to the same criteria relating to the number of recorded shareholders as for indicator A.

The qualification **B+** is also attributed to **B** companies in which the summation of direct ownership percentages (*all categories of shareholders included*) is 50.01% and higher. Indeed, this means that the company surely does not qualify under Independent Indicator C (since it cannot have an unknown shareholder with 50.01% or higher).

Indicator C

Definition: Attached to companies with a recorded shareholder with a total or a calculated total ownership over 50%.

The qualification **C+** is attributed to **C** companies in which the summation of direct ownership percentage (all categories of shareholders included) is 50.01% or higher. Indeed, this means that the company surely does not qualify under Independent Indicator **D** (since it cannot have an unknown direct shareholder with 50.01% or higher).

The **C** indicator is also given to a company when a source indicates that the company has an ultimate owner, even though its percentage of ownership is unknown.

Indicator D

Definition: This is allocated to companies with a recorded shareholder with a direct ownership of over 50%.

Indicator U

Definition: This is allocated to companies that don't fall into the categories **A**, **B**, **C** or **D** - indicating an *unknown* degree of independence.

APPENDIX 8

Factors to consider when reviewing a comparables search process

- **Choice of transfer pricing method:** The choice of the transfer pricing method (and if necessary, the choice of tested party) are very important. These must be in line with the comparability (including functional) analysis and properly supported. Knowledge of the tested party (especially derived from the functional analysis) is necessary. This knowledge can be obtained through the master and the local file, CbC report, external publicly available information (on the Internet), internal information within the tax authority, and so on.

- **TNMM:** A benchmark is often done related to the transactional net margin method. The choice of the PLI (revenues, operational costs, assets, etc.) should be consistent with the functional analysis and the nature and characteristics of the transaction.

- **Internal comparables:** Where information on potentially comparable transactions between the taxpayer or its associated enterprise and independent parties exist, they should be analysed to determine whether they are internal comparables. This also requires a bigger picture of the whole group the tested party operates within.

- **Selection of database or other source of potential comparables**: The scope of the data included in the database or other source of information should be considered to ensure it is appropriate.

- **Benchmark steps:** The benchmark steps (*e.g*. industry classification codes or key words used) and the corresponding results should be reviewed and, if necessary, can be replicated to see if it leads to the same outcome of potential comparables. If there are questions or doubts about the steps being taken, these should be discussed with the taxpayer; other criteria may be applicable.

- **Manual screening:** The manual screening is the part of the analysis that is most sensitive for selectivity or "cherry picking". A good understanding of the tested party and the transaction being analysed to judge its comparability to the other companies is necessary.

- To have a good understanding of the outcome of the benchmark, a rough data dump within the database can be made. This number should be in line with the final outcome of the benchmark. If there are big deviations, leading to doubts as to the reliability of the benchmark, this should be discussed with the taxpayer.

- Besides the final set of comparables, the comparables that were not accepted should also be reviewed [if there are too many, (statistical) sampling can be used] to judge if they are correctly not accepted.

- **Loss-making comparables:** These companies can have, for example, an average loss over three/five years or losses for three out of five years. If a company has prolonged losses (or on the other hand, extremely positive results) this can be an indication of the existence of particular economic conditions, a business strategy or higher risks, which may mean that the loss-making entity is not comparable to the tested party. Normally, loss-making comparables are refused unless the taxpayer can show that it is indeed

comparable (e.g. at a similar stage of a particular business cycle; carrying out a similar business strategy; or subject to the manifestation of similar economically significant risks, etc.).

- **Number of comparables:** The number of comparables can influence the interquartile range. If there is a big number of potential comparables from initial screening, it may be appropriate to incorporate quantitative selection criteria in some cases. If the number of comparables is small, the use of a statistical interquartile range may not be meaningful.

- **Comparability adjustments and diagnostic ratios:** These adjustments should only be made to increase the comparability and the reliability of the data, not to create comparability. Caution is advised when using adjustments or diagnostic ratios.

APPENDIX 9

Example of a working capital adjustment

In the example set out below, TestCo (the tested party) has been identified as having significantly higher levels of working capital as compared to Comp Co (an otherwise comparable entity). In order to adjust for this, first differences in the levels of working capital between the tested party and the comparables (in this case only one: CompCo) are identified and measured against an appropriate base. In this example, trade receivables, trade payables, and inventories are considered, and the differences are applied against a sales base (on the basis that the TNMM is being applied as a sales-based financial indicator in this case).

Example from the *OECD Transfer Pricing Guidelines* (Annex to Chapter III, p. 329):

The process of calculating working capital adjustments:

a) Identify differences in the levels of working capital. Generally trade receivables, inventory and trade payables are the three accounts considered. The transactional net margin method is applied relative to an appropriate base, for example costs, sales or assets (see paragraph 2.64 of the Guidelines). If the appropriate base is sales, for example, then any differences in working capital levels should be measured relative to sales.

b) Calculate a value for differences in levels of working capital between the tested party and the comparable relative to the appropriate base and reflecting the time value of money by use of an appropriate interest rate.

c) Adjust the result to reflect differences in levels of working capital. The following example adjusts the comparable's result to reflect the tested party's levels of working capital. Alternative calculations are to adjust the tested party's results to reflect the comparables levels of working capital or to adjust both the tested party and the comparable's results to reflect "zero" working capital.

A practical example of calculating working capital adjustments:

The following calculation is hypothetical. It is only to demonstrate how a working capital adjustment can be calculated.

TestCo	Year 1	Year 2	Year 3	Year 4	Year 5
Sales	$179.5m	$182.5m	$187m	$195m	$198m
Earnings Before Interest & Tax (EBIT)	$1.5m	$1.83m	$2.43m	$2.54m	$1.78m
EBIT/Sales (%)	0.80%	1%	1.30%	1.30%	0.90%
Working Capital (at end of year)					
Trade Receivable (R)	$30m	$32m	$33m	$35m	$37m
Inventories (I)	$36m	$36m	$38m	$40m	$45m
Trade Payables (P)	$20m	$21m	$26m	$23m	$24m
Receivables (R) + Inventory (I) - Payables (P)	$47m	$45m	$52m	$58m	$46m
(R + I - P) / Sales	25.60%	25.80%	24.10%	26.70%	29.30%

CompCo	Year 1	Year 2	Year 3	Year 4	Year 5
Sales	$120.4m	$121.2m	$121.8m	$126.3m	$130.2m
Earnings Before Interest & Tax (EBIT)	$1.59m	$3.59m	$3.15m	$4.18m	$6.44m
EBIT/Sales (%)	1.32%	2.96%	2.59%	3.31%	4.95%
Working Capital (at end of year)					
Trade Receivable (R)	$17m	$18m	$20m	$22m	$23m
Inventories (I)	$18m	$20m	$26m	$24m	$25m
Trade Payables (P)	$11m	$13m	$11m	$15m	$16m
Receivables (R) + Inventory (I) - Payables (P)	$24m	$25m	$35m	$31m	$32m
(R + I - P) / Sales	19.90%	20.60%	28.70%	24.50%	24.60%

The differences between TestCo and CompCo are then calculated, and the time value of money reflected by multiplying the difference by an appropriate interest rate in order to increase comparability. This adjustment is then applied to CompCo's operating profit margin (EBIT/sales) to produce a working capital adjusted operating profit margin.

Working Capital Adjustment	Year 1	Year 2	Year 3	Year 4	Year 5
TestCo's (R + I - P) / Sales	25.60%	25.80%	24.10%	26.70%	29.30%
CompCo's (R + I - P) / Sales	19.90%	20.60%	28.70%	24.50%	24.60%
Difference (D)	5.70%	5.10%	-4.70%	2.10%	4.70%
Interest rate (i)	4.80%	5.40%	5.00%	5.50%	4.50%
Adjustment (D * i)	0.27%	0.28%	-0.23%	0.12%	0.21%
CompCo's EBIT / Sales (%)	1.32%	2.96%	2.59%	3.31%	4.95%
Working Capital Adjusted EBIT / Sales for CompCo	1.59%	3.24%	2.35%	3.43%	5.16%

In this case, CompCo's operating margin would be higher in Year 1, 2, 4 and 5 and lower in Year 3. These operating profits reflect the more comprehensive financing function of TestCo.

Some observations:

- An issue in making working capital adjustments is what point in time are the Receivables, Inventory and Payables compared between the tested party and the comparables. The above example compares their levels on the last day of the financial year. This may not, however, be appropriate if this timing does not give a representative level of working capital over the year. In such cases, averages might be used if they better reflect the level of working capital over the year.

- A major issue in making working capital adjustments involves the selection of the appropriate interest rate (or rates) to use. The rate (or rates) should generally be determined by reference to the rate(s) of interest applicable to a commercial enterprise operating in the same market as the tested party. In most cases a commercial loan rate will be appropriate. In cases where the tested party's working capital balance is negative (that is Payables > Receivables + Inventory), a different rate may be appropriate. The rate used in the above example reflects the rate at which TestCo is able to borrow funds in its local market. This example also assumes that the same interest rate is appropriate for payables, receivables and inventory, but that may or may not be the case in practice. Where different rates of interest are found to be appropriately applicable to individual

classes of assets or liabilities, the calculation may be considerably more complex than shown above.

- The purpose of working capital adjustments is to improve the reliability of the comparables. There is a question whether working capital adjustments should be made when the results of some comparables can be reliably adjusted while the results of some others cannot.

There are alternative approaches to perform working capital adjustments. One alternative would be to adjust the tested party's result to results to reflect those of the comparables and adjusting both the tested party and the comparables' results to reflect zero working capital.

APPENDIX 10

Example of adjustment for accounting differences

Employee Stock-Based Compensation Adjustment[131]

The basic premise for making a stock-based compensation adjustment is that employee stock-based compensation is a form of employee remuneration (i.e. similar to wages and bonuses). As employee stock-based compensation is not always subject to uniform accounting treatment, this can lead to distortions in a company's financials that have a material impact on the condition being examined (for example, the net margin) that may require adjustment, as is illustrated by the following example.

A comparison is being made of the net margins earned in controlled transactions entered into by Enterprise A (the tested party) and the net margins earned in uncontrolled transactions entered into by Enterprise B.

- Enterprise A has booked employee stock option compensation as an expense.
- Enterprise B has disclosed that it awarded its employees stock-based compensation during the relevant year of $3.25 million after tax, but that no employee stock-based compensation expense has been booked.

This difference in treatment has a material impact on the net margin reported by Enterprise B, as its expenses are understated as compared to Enterprise A. In order to adjust for this material difference, assuming a statutory tax rate of 35%, the reported $ 3.25 million after-tax stock-based compensation is firstly grossed up to a before-tax amount of $ 5 million ($ 3.25/(1-0,35)) and Enterprise B's net margin is adjusted accordingly:

	Enterprise B (before adjustment)	**Enterprise B (after adjustment)**
Revenue	100	100
Cost of goods sold	-65	-65
Gross profit	35	35
Selling, general and administrative expenses	-19	-24
Depreciation	-5	-5
Operating profit	**11**	**6**
Operating margin	11%	6%

[131] World Bank Group (2016), *Transfer Pricing and Developing Economies: A handbook for policy makers and practitioners*, Annex 4E.

APPENDIX 11

Limited empirical support for reliance on non-adjusted foreign market data

1. Background

A review conducted by the authors of this toolkit indicated that, the use of foreign comparable information for transfer pricing studies has not been directly investigated in academic analysis, but Meenan et al. (2004)[132] analysed whether pan-European comparable data provide different arm's length ranges from country specific samples and concluded that "European arm's length ranges do not statistically differ from country-specific arm's length ranges in almost all cases." An update by Peeters et al. (2016) comes to the same conclusion for the years 2010-2014.

In this Appendix, consideration is given to the question of whether the interquartile range for a given industry depends on country specific factors. Using a sample of company information from 2006-2014, two versions of a nonparametric chi-square test were employed. First, a joint test was performed, simultaneously analysing the equality of industry-specific interquartile ranges across Europe. This test rejects the homogeneity of profitability distributions for all industries and time periods under review. To further investigate whether the equality of interquartile ranges holds for a subset of countries, a series of country-specific tests was then performed. These tend to confirm the conclusion of the joint test.

In conducting this review, the authors followed the prior work closely in defining several key parameters, including the definition of industries and dependent variables. However, the review conducted by the authors deviated by relying on more aggregated test statistics, making it thus more likely to reject the null-hypothesis of common interquartile ranges.

2. Empirical strategy

To explain the empirical methodology in more detail, the following notation is introduced. The cumulative distribution function of firm profitability in country i is denoted by $F_i(r)$. This function gives the share of firms in country i with a profitability ratio smaller than or equal to r. Let the wider region comprise a total of N countries. The aggregated cumulative distribution function, $F(r)$, representing the share of firms with profitability ratios below r across all countries, then follows

$$F(r) = \sum_{i=1}^{N} w_i F_i(r),$$

where w_i is the share of firms operating in country i.

Country i's interquartile range i is the difference between two profitability ratios, denoted r_i^* and r_i^{**}, which satisfy the following conditions: $F_i(r_i^*) = 0.25$ and $F_i(r_i^{**}) = 0.75$. In words, 25% of the the firm-population in country i is less profitable than r_i^* and 75% is less profitable than r_i^{**}. Accordingly, the interquartile range, $r_i^{**} - r_i^*$, defines bounds within which the "middle" 50%

[132] http://ec.europa.eu/taxation_customs/resources/documents/forum7/europe_one_market_white_paper_feb18.pdf

of a country's firms lie in profitability terms. The analysis seeks to determine whether the interquartile range is constant across the countries under review. The null-hypothesis reads:

(1) $F_i(r^*) = 0.25$ and $F_i(r^{**}) = 0.75$. for all i

If these 2N conditions (two for each country) simultaneously hold, the aggregate cumulative distribution function also satisfies the same equalities with the same profitability ratios r^* and r^{**}.

Two distinct strategies were used to test the null-hypothesis. For the first test, one chi-square distributed variable with 2N degrees of freedom was constructed. More specifically, for each industry the critical values defining the first and third quartile of the cumulative distribution were first recorded:

(2) $F(r^*) = 0.25$ and $F(r^{**}) = 0.75$.

Given the values r^* and r^{**}, the number of firms in each country with profitability ratios below and above this benchmark profitability were recorded. Formally, the analysis defines $o_{i1} = F_i(r^*)N_i$, $o_{i2} = [F_i(r^{**}) - F_i(r^*)]N_i$, $o_{i3} = [1 - F_i(r^{**})]N_i$, where N_i is the total number of firms operating in country i. Under the null-hypothesis, 25% of the country-specific firm population in both o_{i1} and o_{i3} , and 50% in the middle group o_{i2} are expected. Accordingly, a joint test statistic defines the variable

$$(3)\ X^2 = \sum_{j=1}^{3}\sum_{n=1}^{N}\frac{\left(e_{jn} - o_{jn}\right)^2}{e_{jn}},$$

where e_{jn} denotes the expected number of firms in each country-specific group. This variable is chisquare distributed with 2N degrees of freedom, due to N independent countries each of which is described by 2 independent subgroups. The chi-square statistic X^2 increases as country-specific deviations between observed and expected values in any group become more pronounced, indicating the observed distribution is less likely an outcome under the null-hypothesis.

The second test builds on the above definitions but separates the test statistic into N independent variables, each of which follows a chi-square distribution with 2 degrees of freedom. Specifically, a country-specific test now reads

$$(4)\ X_i^2 = \sum_{j=1}^{3}\frac{\left(e_{jn} - o_{jn}\right)^2}{e_{jn}}.$$

For consistency between the country-specific and the aggregate test, the benchmark profitability ratios r^* and r^{**} in the statistical analyses were treated as given rather than estimated.[133] Note that the benchmark against which the country-specific distribution is tested is itself a weighted

[133] Strictly speaking, we estimate the ratios r^* and r^{**} based on country-specific data. The aggregate test thus relies on 2(N-1) independent observations rather than 2N. We nevertheless treat the benchmark ratio as given and use 2N degrees of freedom in the joint test as (i) less degress of freedom would make the observed results even less likely under the null-hypothesis and (ii) for consistency with country-specific tests.

average of country-specific distributions. For countries with large weights, the test is thus less likely to reject the hypothesised equality.[134]

This approach thus deviates from both Meenan et al. (2004) and Peeters et al. (2016) in using a joint test. However, country-specific results were also provided for a more nuanced picture and for closer comparability with prior analyses.

3. Sample selection and descriptive statistics

The analysis conducted by the authors drew on the database ORBIS (commercially offered by Bureau van Dijk), which provides consolidated and unconsolidated financial information on firms worldwide. Companies operating in the manufacturing or retail sector (Nace Rev 2. Main Sections C and G) were selected and information on profitability and size measures for the years 2006-2014 retrieved. To ensure that the main dependent variables were not distorted by strategic pricing decisions of multinational enterprises, the approach adopted by Meenan et al. (2004) in restricting the sample to independent firms was followed.[135]

The baseline sample comprises roughly 600,000 European firms in the manufacturing and retail sectors. To strengthen sample homogeneity, the baseline set was limited in a sequence of six steps, summarised in Table 1 below.

First, firms were excluded if less than six years of the main dependent variable were observed. Following Meenan et al. (2014) the dependent variable across industries was differentiated: the Return on Assets was used for firms in the manufacturing sector and the Operating Profit margin for firms in the retail sector.

Second, small firms, with sales below EUR 2 Mio were excluded. For comparability with prior work, the dataset was restricted to firms operating in one of four narrowly defined industries (see details below) and excluded start-ups. After eliminating firms with exceptional profitability ratios (Step 3),[136] firms were excluded if they are located in countries with less than 10 firms in the same industry to ensure that the statistical tests are meaningful.

[134] An alternative approach would exclude the country-specific distribution being tested in determining the critical values r*, and r**. For simplicity and comparability of our results with prior work, we use (2) in setting the critical values and reckon that other test approaches were even more likely to reject the null-hypothesis.

[135] Specifically, the sample was restricted to firms with independence indicators B or higher (these companies are not majority owned by other corporations) and exclude firms that own a subsidiary, directly or indirectly, with more than 50 percent.

[136] The 2.5 and 97.5 percentile of both profitability ratios were recorded. For the manufacturing sector and retail sector, these bounds are given by RoA: (-0.09,0.21) and OPM: (-0.02,0.21), respectively. Firms with profitability ratios not lying within these bounds were excluded.

Table 1: Sample Selection			
Step	**Description**	**Firms**	**% of initial sample**
0	Initial sample	592,069	100
1	At least 6 profitability observations per firm	300,453	51
2	Sales > EUR 2,000,000	66,009	11
3	Narrow industries	5,795	1
4	Incorporated before 2005	5,265	1
5	Remove outliers	5,037	1
6	Minimum of 10 observations	4,880	1

Meenan et al. (2004) analyse four broad industry categories: automotive manufacturing, electronics manufacturing, chemicals distribution, and electronics distribution. The authors use NACE Rev 1. codes up to the four-digit level to define groups.

Aiming for comparability of the results, this definition was adhered to closely and correspondence tables used to translate the earlier definition to the NACE Rev. 2 classification system currently in place (see Table 2 below).[137]

Table 2: Definition of industry groups in terms of NACE Rev. 2 codes				
Industry	**Automotive Manufacturing**	**Electronics Manufacturing**	**Chemicals Distribution**	**Electronics Distribution**
NACE Rev. 2 Codes	3091, 3099, 2910, 2892, 2920, 3311, 2932, 2822, 3101, 3317	3320, 2823, 2620, 6209	4612, 4675, 4676	4651, 4665, 4666, 4652
Number of firms	1,390	621	1,562	1,307

The main dependent variables are return on assets (ROA) for firms in the manufacturing sector and operating profit margin (OPM) for firms in the distribution sector. Both of these variables are ratios with earnings before interest and taxation in the numerator.

The profitability measure ROA standardises profits by the amount of total assets, while OPM employs turnover in the denominator. The distribution of these profitability measures was further smoothed by taking three-year averages.

[137] Some of the industries defined by Meenan et al. are not clearly allocated to Nace Rev.2 codes. For instance, Nace Rev.2 code 3320 includes the old Nace Rev.1 codes 32 and 30. However, in the definition used by Meenan et al. 30 was part of Electronics manufacturing and 32 was part of automotive manufacturing. We assigned the industry Nace Rev.2 industry 3320 to Electronics in order to obtain more equally sized groups.

Table 3 below summarises basic distributional statics for the selected industries, aggregated over all countries in the sample. In 2008, the interquartile range of profitability in the automotive manufacturing sector was (0.025, 0.081).[138]

With a median ROA of 5 percent in 2008, the electronics manufacturing industry in Europe also experienced some decline compared to profitability ratios in 2004. Firms in the retail sector were, with an interquartile range of (0.016, 0.064) and (0.018, 0.070), respectively, somewhat more profitable in 2008. When contrasting interquartile ranges between 2008 and 2014, different trends emerge. While the manufacturing industry became more heterogeneous, with interquartile ranges broadening (see last row in Table 3), profitability ranges in the distribution sector seem to have narrowed slightly.

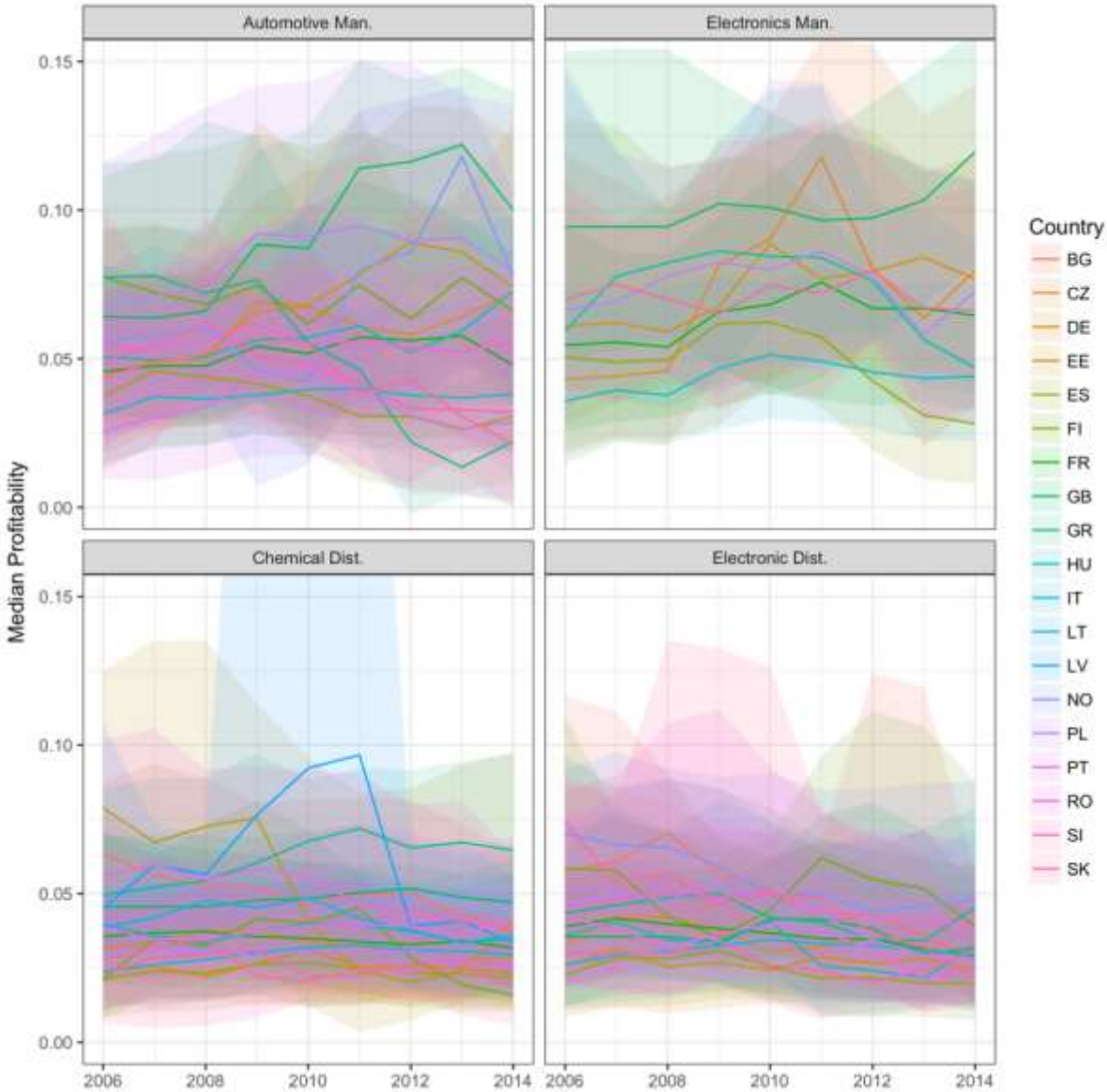
Table 3: Profitability Distribution in 2008 and 2014

Industry	**Automotive Man.**		**Electronic Man.**		**Chemicals Dist.**		**Electronic Dist.**	
Year	2008	2014	2008	2014	2008	2014	2008	2014
1st Quartile	0.025	0.019	0.026	0.028	0.016	0.016	0.018	0.012
Median	0.046	0.047	0.050	0.057	0.032	0.031	0.037	0.028
3rd Quartile	0.081	0.087	0.087	0.099	0.064	0.056	0.070	0.054
Interquartile range (3rd - 1st)	0.053	0.069	0.061	0.071	0.048	0.040	0.052	0.042
	Notes: Profitability is measured via ROA for manufacturing industries and via OPM for firms in distribution. Three-year averages are used.							

Figure 1 below gives a first indication of the heterogeneity in profitability ratios across countries. The lines in the panels depict median profitability ratios (ROAs for manufacturing and OPM for retail) while the clouds depict country-specific interquartile ranges.

[138] The interquartile range in the automotive manufacturing sector reported in Meenan et al. (2004) was (0.036,0.118) with a median of 0.069.

Figure 1: Heterogeneity in profitability ratios across countries



4. Results

Table 4 presents the results of the chi-square test. The joint hypothesis that all country-specific profitability distributions correspond to the aggregate distribution was first tested. To obtain more granular results, correspondences between country-specific and aggregate quartiles were subsequently investigated separately for each country (and industry).

The first three rows present results for the joint test, examining whether industry-specify profitability quartiles are constant across countries. The first and second lines give the $\chi 2$-statistic and the degrees of freedom respectively. The third line depicts the probability that the observed interquartile distributions derive from one underlying distribution which is constant across all countries. The test procedure rejects the null-hypothesis in all industries and time periods at the 1% level.

There is, however, slightly more similarity in the quartiles of electronics manufacturing: here there was a residual probability of 0.3% and 0.4% that country-specific distributions derive from the same underlying distribution.

In the following rows comparability of country-specific distributions is summarised with the aggregate on a country by country basis. As expected, the chi square test rejects the null hypothesis of equal first and third quartiles for a number of countries in each industry at the 10% significance level.

Table 4: Chi-square tests for equality of interquartile ranges

Sector		**Automotive Man.**		**Electronic Man.**		**Chemicals Dist.**		**Electronic Dist.**	
Time		**2008**	**2014**	**2008**	**2014**	**2008**	**2014**	**2008**	**2014**
Joint test	x^2statistic	83.40	135.3	38.54	38.17	102.36	124.83	86.74	61.43
	DF	30	30	18	18	36	36	32	32
	p-value	<0.001	<0.001	0.003	0.004	<0.001	<0.001	<0.001	0.001
Separate test	H0 not rejected, Countries	DE-ES-GR-HU-NO-SI-SK-RO	FI-FR-NO-PT-SI-SK-RO	CZ-DE-ES-HU-SK	DE-FR-HU-PL-SK	CZ-DE-FI-GB-PL-PT-SI-SK-LT-LV	CZ-DE-EE-FI-FR-GB-HU-PL-SI-BG-LT-LV-RO	CZ-DE-FI-FR-GB-HU-PT-SI-SK	CZ-DE-FI-FR-GB-HU-IT-PL-PT-SI-SK-BG
	H0 not rejected, share of countries	53	47	56	75	56	72	56	56
	H0 rejected, Countries	CZ-FI-FR-GB-IT-PL-PT	CZ-DE-ES-GB-GR-HU-IT-PL	FR-GB-IT-PL	e	EE-ES-FR-GR-HU-IT-BG-RO	ES-GR-IT-PT-SK	ES-GR-IT-NO-PL-BG-RO	ES-GR-NO-RO
	H0 rejected, share of countries	47	53	44	25	44	28	44	44

APPENDIX 12

Examples on country risk adjustments

As noted in Part II, section 5.5, there is no established way of making reliable adjustments for differences in geographic market. The examples below set out two possible ways of making such adjustments, but it should be stressed that the appropriateness and reliability of these would need to be considered in each case.

As was also noted in Part II, section 5.5, arguably, an increase in risk should result in a widening of the potential range, rather than a systematic increase.

Example 1[139]

Simplified country risk adjustment

The tested party (TestCo) is a contract manufacturer operating in Country A, and the only available comparable (CompCo) is a contract manufacturer operating in Country B.

	TestCo Country A	**CompCo Country B**
Revenue	100	120
Total costs	80	90
Operating profit	20	30
Operating assets	80	100

The country risk in Country A is considered to be higher than that in Country B, and thus it is considered necessary to adjust for this country risk. The adjustment is calculated by adjusting the operating profit of CompCo to reflect the additional return on operating asset in accordance with the country specific risk premium. The average long-term government bond yield is used as a proxy for the country specific risk premium.

The average long-term government bond yield for Country A is 9% and for Country B it is 5%. Hence, the government bond yield gap is 4%. The adjustment for country specific risk is then calculated as follows:

[operating assets of CompCo] * [country specific risk premium] = [100] * [4%] = 4

This additional 4 of profit, which reflects the increased return for the notional country specific risk borne by CompCo for the purposes of the comparability analysis, is then added to the operating margin of CompCo. CompCo's profit will increase from 30 to 34.

[139] World Bank Group (2016), *Transfer Pricing and Developing Economies: A handbook for policy makers and practitioners*, Annex 4E (the example is based on presentation by Büttner (2010); "Use of Foreign Comparables and Comparability Adjustments for Economic (Market) Differences." Presented at a workshop on Transfer Pricing and Exchange of Information, OECD, Quito, Ecuador, August 24 – 27.

Example 2

Country practices - Canada

Company A is a limited risk entity operating in Country A. The only available (reliable) comparables are from Country C. Following a functional analysis, it is determined that a TNMM is the most appropriate transfer pricing method for the tested transactions, and the return on assets (ROA) is the most appropriate PLI (with Company A as the tested party) to benchmark comparable companies set.

Final set of unadjusted comparables						
	ROA **2011**	ROA **2012**	ROA **2013**	ROA **2014**	ROA **2015**	Average
Minimum	1.06%	-0.34%	0.75%	0.56%	-10.06%	-1.61%
Lower quartile	10.16%	5.21%	5.60%	5.05%	2.21%	5.65%
Median	13.52%	12.21%	10.18%	7.59%	6.72%	10.04%
Upper quartile	16.60%	19.18%	18.67%	13.70%	10.58%	15.75%
Maximum	36.37%	28.98%	22.19%	21.83%	27.04%	27.28%
Average	13.67%	13.25%	11.66%	9.56%	6.86%	11.00%
ROA tested party	3.45%	-6.21%	3.12%	1.25%	-4.17%	-0.51%

To adjust for the differences between two markets, it is reasonable and practical to impose a country risk premium on the comparable companies set. In order to apply the hypothetical country risk premiums to the comparable company set for the years under investigation, the country risk premium is calculated and applied to the ROA of all the comparable companies. A simple comparison of using the level indicators of unadjusted comparable companies would be incorrect since the identified risk associated with investing capital in the foreign country would not be included.

A 5-10-year government bond yield rate provides a fair investment benchmark for a practically risk-free rate. The interest rate risks, reinvestment rate risks, and default risks are included in the price of the bond over the duration of the bond. In order to make the country risk adjustment, the difference between the home country and foreign country 10-year government bond yield rate needs to be calculated.

Calculation of Bond Yield Differential					
Country government 10 bonds	**2011**	**2012**	**2013**	**2014**	**2015**
Home country government 10 bond yield annual rate	4.05%	4.09%	2.69%	3.60%	3.16%
Foreign country bonds	7.55%	5.11%	4.16%	7.53%	11.79%
Bond yield differential	3.50%	1.02%	1.47%	3.93%	8.63%

In order to apply the foreign country risk premiums to the comparable set for the years under investigation, the bond yield differential is added to the return on assets of all the comparable companies.

Final set of country risk adjusted comparables						
	ROA **2011**	ROA **2012**	ROA **2013**	ROA **2014**	ROA **2015**	Average
Minimum	4.56%	0.68%	2.22%	4.49%	-1.43%	2.10%
Lower quartile	13.66%	6.23%	7.07%	8.98%	10.84%	9.36%
Median	17.02%	13.23%	11.65%	11.52%	15.35%	13.75%
Upper quartile	20.10%	20.20%	20.14%	17.63%	19.21%	19.46%
Maximum	39.87%	30.00%	23.66%	25.76%	35.67%	30.99%
Average	17.17%	14.27%	13.13%	13.49%	15.49%	14.71%
ROA tested party	3.45%	-6.21%	3.12%	1.25%	-4.17%	-0.51%

As a result of the adjustment, the outcome for the ROAs of the comparables has increased. It should be recommended to adjust the tested party's ROA to the median value for each year under consideration.

APPENDIX 13

Formulas for a two-step approach to country risk[140]

The formula described here is simply one way in which an adjustment for country risk has been approached by certain practitioners. As was noted earlier, the appropriateness and reliability of such an approach would need to be considered in each case.

Equation 1 - Balance sheet adjustment

$$\Delta AR_T = (0 - Comparables\ Days\ AR) * \frac{Sales}{365}$$

Where:
ΔAR_T = the change in accounts receivable when setting the target (T) days accounts receivable to zero

Comparables Days AR = the days in accounts receivable of the European comparables

0 = the target days receivable to remove the impact of days receivable

Equation 2 - Income statement adjustment

$$\Delta Sales_T = \Delta AR_T * \frac{i_{non-domestic}}{1 + \left(i_{non-domestic} * \frac{Comparables\ Days\ AR}{365}\right)}$$

Where:
$\Delta Sales_T$ = the adjustment to sales after removing the impact of accounts receivable
ΔAR_T = the impact on accounts receivable estimated as part of the balance sheet adjustment
$i_{non-domestic}$ = the short-term interest rate reflecting the underlying credit risk

After equation 1 + 2 the working capital is removed. The next step is to introduce the working capital related impact of operating in the more risky developing market.

Equation 3 - Balance sheet adjustment

$$\Delta AR_{LT} = (Target\ Comparables\ Days\ AR - 0) * \frac{Adjusted\ Sales}{365}$$

Where:
ΔAR_{LT} = change in accounts receivable when setting days of accounts receivable to the tested party days of receivable
Target Comparables Days AR = the days in accounts receivable of the tested party
0 = the accounts receivable of the comparables following the above described first step of the adjustment

[140] Starkov et al (2014), *Comparability adjustments* pp. 9-10

Equation 4 - Income statement adjustment

$$\Delta Sales_{LT} = \Delta AR_{LT} * i_{local}$$

Where:
$\Delta Sales_{LT}$ = the adjustment to sales by adjusting the accounts receivable in line with the local target company
ΔAR_{LT} = the impact on accounts receivable estimated as part of the balance sheet adjustment
i_{local} = the short-term interest rate of the local market in which the target company operates.

APPENDIX 14

Interquartile range

The interquartile range is defined as "the variate distance between the upper and lower quartiles. This range contains one half of the total frequency and provides a simple measure of dispersion which is useful in descriptive statistics".[141]

Interquartile ranges, being a measure of central tendency, are only statistically meaningful where there is a sufficiently large sample size.

There are a number of ways of calculating the interquartile range. Most databases provide a tool to calculate an interquartile range.
MS Excel also contains a tool to calculate the interquartile range, which is commonly used in practice. It can be applied as follows:

Step 1: Enter your data into a single Excel column on a worksheet. For example, type your data in cells A2 to A10. Don't leave any gaps in your data.

Step 2: Click a blank cell (for example, click cell B2) and then type **=QUARTILE(A2:A10,1)**. You'll need to replace A2:A10 with the cell references in your data set. For example, if you typed your data into B2 to B50, the equation will be **=QUARTILE(B2:B50,1)**. The "1" in this Excel formula (A2:A10,**1**) represents the first quartile (i.e. the point lying at 25 percent of the data set).

Step 3: Click a second blank cell (for example, click cell B3) and then type **=QUARTILE(A2:A10,3)**. Replace A2:A10 with the cell references in your data set. The "3" in this Excel formula (A2:A10,**3**) represents the third quartile (i.e. the point lying at 75 percent of the data set).

Step 4: Click a third blank cell (for example, click cell B4) and then type **=B3-B2**. If your quartile functions from Step 2 and 3 are in different locations, change the cell references.

Step 5: Press the "Enter" key. Excel will return the IQR in the cell you clicked in Step 4.

[141] As defined in the OECD Statistics Portal, glossary of statistical terms, see: http://stats.oecd.org/glossary/

APPENDIX 15

Financial ratios and acronyms

Description	Formula
Tax leverage	$TLev = \frac{NP}{EBT}$
Financial leverage	$FLev = \frac{EBT}{EBIT}$
Operating margin	$OM = \frac{EBIT}{Sales}$
Total assets turnover	$TAT = \frac{Sales}{TA}$
Asset structure	$AS = \frac{TA}{EBT}$
Accounts receivable turnover	$RecTO = \frac{Rec}{Inv}$
Inventory turnover	$ITO = \frac{Inv}{Sales}$
Cash position	$CP = \frac{Sales}{CA}$
Short term liquidity	$STLiq = \frac{CA}{CL}$
Liability structure	$LiabSt = \frac{CL}{Debt}$
Long term solvency	$LTSol = \frac{Debt}{Capital}$
Financial structure and risk management	$\frac{Capital}{Equity}$

APPENDIX 16

Common acronyms

Financial statements line items	Acronym
Income statement	
Sales (Turnover)	TO
Cost of goods sold	COGS
Gross profit	GP
Operating expenses (Including selling, general and admin expenses, depreciating expenses often referred to as "SG&A")	OPEX
Earnings before interest and tax	EBIT
Interest expense	Int
Earnings before tax	EBT
Net profit	NP
Balance sheet	
Assets	
Cash and cash equivalents	Cash
Accounts receivables	Rec
Inventory	Inv
Other current assets	OCA
Current assets	CA
Fixed assets (net of depreciation)	FA
Property plant and equipment	PPE
Intangible assets	IA
Total assets	TA
Liabilities	
Accrued expenses	AE
Accounts payable	Pay
Other current liabilities	OCL
Current liabilities	CL
Long-term debt	Debt
Equity	eQ

APPENDIX 17

Ratios measuring functions, assets, and risks

Specific implication	Transfer pricing categorisation (functionality driven)	Ratio	Description
Operational ability	Function performed driven	$OM = \frac{EBIT}{Sales}$	Operating margin, widely used in transfer pricing analysis as a PLI under the TNMM method
Use of sources finance to obtain leverage benefits	Function performed driven	$FLev = \frac{EBT}{EBIT}$	Financial leverage
Use of tax (timing, deferral) to obtain leverage benefits	Function performed driven	$TLev = \frac{NP}{EBT}$	Tax leverage
Cash flow position	Function performed driven	$CP = \frac{Sales}{CA}$	Cash position as expressed by sales to current assets, generated cash flow
Financial and funding structure	Function performed driven	$FSRM = \frac{Capital}{Equity}$	Financial structure and risk management. Companies' financing decisions determine the mix of debt and equity aimed at operational funding. It is also important from a transfer pricing perspective, especially with the thin capitalisation rule (3:1 debt to equity).
Activity	Assets	$TAT = \frac{Sales}{TA}$	Total assets turnover
Accounts receivables	Accounts receivables risk	$RecTO = \frac{Rec}{Inv}$	Accounts receivables turnover
Inventory	Inventory risk	$ITO = \frac{Inventory}{Sales}$	Inventory turnover
Liquidity	Short term liquidity risk	$STLiq = \frac{CA}{CL}$	Short term liquidity
Solvency	Long term solvency	$LTSol = \frac{Debt}{Capital}$	Long term solvency
Liability	Liabilities	$LiabSt = \frac{CL}{Debt}$	Liability structure

APPENDIX 18

Illustrative legislation or regulation for a safe harbour on international transactions involving routine, low risk manufacturing operations

Note: This illustration is set out in the format of legislation or regulations, but the same provisions could equally be applied through an administrative guideline or practice note.

1. This article applies where:
    a. a taxpayer is party to one or more controlled transactions that compensate the taxpayer for "qualifying manufacturing activities" that it carries on in [country]; and
    b. the conditions in Sub-articles 5 and 6 of this Article are met;

2. Where this article applies with respect to one or more controlled transactions:
    a. no adjustment will be made under [section #] with respect to those controlled transactions; [and
    b. the requirements of the transfer pricing regulations will not be applicable]

3. A taxpayer carries on a "qualifying manufacturing activity" if:
    a. that activity consists only of:
        i. the performance of manufacturing services on behalf of a connected person, or a number of such persons ("toll manufacturing"); or
        ii. the production of manufactured products to order for sale only to a connected person, or a number of such persons ("contract manufacturing"); and
    b. the taxpayer does not perform a manufacturing service for any unconnected persons or sell manufactured goods to any unconnected persons; and
    c. the taxpayer has entered into an arrangement with the connected person or persons under which the connected person or persons assume the principal business risks associated with the manufacturing activities of the taxpayer and agrees to compensate the taxpayer for its manufacturing activities at levels consistent with Sub-article 5 of this Article; and
    d. the taxpayer does not engage in advertising, sales, marketing and distribution functions, credit and collection functions, or warranty administration functions with regard to the manufacturing service it performs and/or products it manufactures, and does perform functions, use assets or assume risks that are expected to contribute to the value of intangibles, such as activities relating to the development, enhancement, maintenance, protection or exploitation of those intangibles;
    e. in the case of contract manufacturing, it does not:
        i. retain title to finished products after they leave its factory;
        ii. bear any transportation or freight expense with respect to such finished products; and
        iii. bear any risk of loss with respect to damage or loss of finished products in transit; and
    f. the taxpayer does not engage in managerial, legal, accounting, or personnel management functions other than those directly related to the performance of its manufacturing activities; and
    g. the taxpayer does not:
        i. own, or share in the ownership, of
        ii. have rights or reasonable claims to ownership, or a share in the ownership, of;
        iii. bear the cost or part of the cost of developing or enhancing; or
        iv. pay royalties for the right to exploit

    any valuable product, process or marketing intangibles (e.g. designs, patents, formulas, trademarks, brand names), including valuable know-how.

4. For the purposes of Sub-article 1(a) of this Article, transactions compensating a taxpayer for qualifying manufacturing activities are:
    a. in the case of contract manufacturing, sales of manufactured products

b. in the case of toll manufacturing, service fees received for the qualifying manufacturing activity

5. Condition 1 - The compensation received by the taxpayer for transactions related to that activity (but not for any other transactions conducted by the taxpayer) is not less than the applicable minimum amount:
    a. In cases where the taxpayer conducts a qualifying manufacturing activity that is contract manufacturing, the minimum amount of total compensation from the sale of the products in respect of the qualifying manufacturing activity is the total costs of the qualifying manufacturing activity, excluding only net interest expense, currency gain or loss and any non-recurring or extraordinary costs, plus a XXX percent mark-up.
    b. In cases where the taxpayer conducts a qualifying manufacturing activity that is toll manufacturing, the minimum amount of net income for the manufacturing service performed by the taxpayer is the total costs of the qualifying manufacturing activity, excluding only net interest expense, currency gain or loss and any non-recurring or extraordinary costs, plus a XXX percent mark-up.

6. Condition 2 - Documentation is maintained by the taxpayer and submitted to the [Tax Authority] within [45] days of a written request being duly issued by the [Tax Authority]. The documentation must include:
    a. a description of the activities of the taxpayer and, in particular, documents the consistency of the activities with Sub-article 3 of this Article; and
    b. Calculations demonstrating that the transactions compensating a taxpayer for the qualifying manufacturing activities are consistent with Sub-article 5 of this Article.

7. Where this article does not apply to a controlled transaction, the general rules outlined in this Regulation will apply.

Application of this Article is without prejudice to the application of [Country's] obligations under an applicable international treaty.

The mark-ups specified in Sub-article 6 of this Article may be reviewed periodically by the Ministry of Finance [or tax administration], taking into account Article 3 of this Regulation.

APPENDIX 19

Country practices on safe harbours for low value-adding transactions

Country	Safe harbour margin/mark-up	Low value-adding transactions defined	Excluded transactions
OECD	5%	Supportive nature, not part of the core business of the MNE group, not requiring use of and do not lead to the creation of unique and valuable intangibles. Non-exhaustive list of examples provided. Also, cannot be rendered to unrelated customers of the members of the MNE group.	Core business services; R&D services; manufacturing and production services; sales, marketing and distribution services; financial transactions; extraction, exploration, or processing of natural resources; insurance/reinsurance; services of corporate senior management.
EU JTPF	3-10% (often about 5%)	The core nature of the service is that whilst required it is of a routine nature and not generating high-value adding to either the provider or recipient. Includes services that generate high turnover as long as low-value adding.	Likely to be excluded are services in the nature of innovative R&D, IP, financial transactions and other services that are a significant commercial driver as well as those activities with the potential to generate a high level of reward associated with exposure to high risk.
Australia	7.5% (+/- 2.5%)[142]	Non-core services, i.e. supporting, generally routine services not integral to the earning activities of the MNE group) and *de minimis* cases (totalling less than AUD 500,000 a year)	Amount charged for all non-core services is not more than 15% of the total accounting expenses of the acquiring entity
Austria	5 – 15% margin (5% mark-up if only direct costs) or cost (no mark-up)	The margin applies to routine services, i.e. services relating to routine functions where assets are involved only on a small scale and where risk taking is small. The cost only safe harbour applies to ancillary services, i.e. intra-group services that are not part of the core business of the enterprise.	Not explicitly identified.
Hungary	3-10%	Typically a low value-added service involving back office, accounting, legal, IT or HR services.	Not explicitly identified.
Netherlands	Cost (no mark-up)	Refers to "support services"—services in the area of bookkeeping, legal issues, tax matters and human resources are generally considered as	In general, the following activities are considered primary business processes: production, procurement, sales, marketing, product

[142] Additional documentation may be required to substantiate the higher/lower mark up. Note that these safe harbours are the subject of a bilateral arrangement between Australia and New Zealand.

Country	Safe harbour margin/mark-up	Low value-adding transactions defined	Excluded transactions
		such supporting services. However, an adjustment would indeed be applied if: i) activities are involved that are part of or add more than marginal value to the primary business processes of the group or ii) the respective services are also more than occasionally rendered to independent enterprises.	development and research & development.
New Zealand	7.5% (+/- 2.5%)[143]	Services which are not integral to the profit-earning or economically significant activities of the group. They include activities that are supportive of the group's main business and are generally routine, but are not similar to activities by which the group derives its income. NOTE: Also applies to *de minimis* cases.[144]	Not explicitly identified.
Singapore	5%	Referred to as "routine services." Usually having the following characteristics: related to activities that support the group's main business, different from those main activities, not intended to be carried out for profit but may be required for the effective functioning of the group, and centralised within the parent or group service company for business convenience and efficiency reasons. There is also a non-exhaustive list of routine services. Also, not offered to unrelated party.	Not explicitly identified.
US	Cost (no mark-up)	Services must qualify as either "specified covered services" or "low margin covered services," and may not be services that in the taxpayer's business judgment contribute significantly to key competitive advantages, core capabilities, or fundamental risks of success or failure in trades/businesses of the	Excluded transactions: manufacturing and production; extraction, exploration or processing of natural resources; construction; reselling, distribution, acting as a sales or purchasing agent or acting under commission or other similar arrangement; R&D or

[143] The tolerance of 2.5 percent is possible when dealing with another country that has established policy for mark-up. The direction of the tolerance depends on whether the services are provided to (only increase possible) or supplied by (only decrease possible) the New Zealand associated enterprise.

[144] The margin applies not only non-core but also situations where the cost of supplying/acquiring services is relatively small, i.e. NZD 600,000. Note that these safe harbours are the subject of a bilateral agreement between New Zealand and Australia.

Country	Safe harbour margin/mark-up	Low value-adding transactions defined	Excluded transactions
		renderer, recipient, or both. Specified covered services are listed in an IRS publication; currently there are 101 services on the list. Low margin covered services are those that have a median comparable arm's length mark-up on total services costs of less than or equal to 7%.	experimentation; engineering or scientific services; financial transactions, including guarantees; and insurance or reinsurance..

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Supplementary Report

Addressing the Information Gaps on Prices of Minerals Sold in an Intermediate Form

EXECUTIVE SUMMARY

This supplementary report also responds to a request from the G20 DWG, and arose in the context of increased recognition of the centrality to development of strong tax systems and of the importance of external support in building them.

Mining drives the economies of many developing countries, but raising revenue from mineral product transactions can be challenging. The cross-border sale and purchase of mineral products between related parties creates BEPS risks. One relatively straightforward form of base erosion is for MNEs to sell mineral products to a related entity abroad at prices below equivalent sales to unrelated parties, thereby moving sales revenue and profits offshore. The revenue impact of under-priced shipments can quickly add up to millions in lost tax. These losses can be from under-quoted prices, mis-specified reference prices, excessive deductions/penalty adjustments, handling fees, or simply not declaring income from valuable by-products.

Addressing pricing base erosion risks requires support across several fronts, including legislation, access to information/data, and sector-specific knowledge. This report therefore forms part of a suite of necessary tools and assistance.

Building sector knowledge systematically

Building an understanding of the mining sector is essential to understanding tax risks and to apply transfer pricing analysis. The key is to build that knowledge in a systematic way. Better equipped tax departments means lower base erosion risks and reduced areas of dispute with taxpayers based on misunderstandings of common industry practices.

To build this understanding, the report outlines a systematic methodology that could be adopted by developing country tax departments looking to improve their understanding of their mining sectors. Under this methodology:

- The first step is to review each mine for how minerals are extracted and transformed to saleable products.
- The second is to identify in detail the actual products each mine produces and sells, and whether the processing facilities are also used by third parties under tolling arrangements.
- The third step is to understand what those products are used for, what drives their prices and how they are traded internationally.
- The fourth step is to identify related party sales and understand the economic context to those transactions (including the functions, assets and risks of the related parties).
- The fifth step is to identify available information, analysis and data that could be used to review product sales between related parties.
- The last step is to devise approaches or methodologies that can address as many of those information gaps as possible.

The PCT has prepared several case studies on the key mineral products produced at different mines to illustrate this process. These cover copper, iron ore, thermal coal and gold products

traded in intermediate forms. They examine the mining and transformation of minerals to traded products in intermediate forms, the trading of those products and factors affecting realised prices.

Wider issues related to pricing

The report also highlights several issues related to product pricing that routinely arise for tax authorities, in particular the role of long-term agreements used by MNEs to sell mineral products within the corporate group. These offtake agreements can complicate the use of contemporary spot prices as potentially comparable transactions for transfer pricing analysis and the report emphasises they must be read in the context of any other agreements between the parties, the motivation for the agreement and the actual conduct of the parties. Tax authorities also need to check whether the practices claimed as standard actually apply to the products under review.

Conclusions and potential further work

This work on mineral pricing fills an information gap and several developing countries are already starting to draw on and apply the case studies. But given each mineral has its own unique characteristics and market structure, it is not always possible to extrapolate conclusions from one mineral to another. For this reason, additional case studies would be beneficial, potentially expanded into wider areas including price setting in freight markets; the costs of key mining, smelting or refining inputs (since these determine CIT and royalty deductions); the remuneration of trading and marketing hubs; tax deductions from price risk management; encouraging greater market price transparency for some minerals; and continued capacity building and training.

INTRODUCTION

The report has been prepared in the framework of the Platform for Collaboration on Tax, **(the "PCT")** by the OECD, with the co-operation and input of the other mandated organizations (IMF, WBG and UN). The report reflects a broad consensus among these staff, but should not be regarded as the officially endorsed views of those organizations or of their member countries.

It responds to the November 2014 request from the G20 Development Working Group (DWG) for the OECD to:

> *"…commence a study on the feasibility of addressing the information gap on prices of some natural minerals sold in an intermediate form, e.g. mineral concentrate…"*

The request arises in the context of increased recognition of the centrality to development of strong tax systems and of the importance of external support in building them, and a correspondingly increased willingness of advanced economies to provide substantially greater financing and other support for this. It recognises that, while real progress has been made on increasing tax revenues in low-income countries over the past two decades, for many countries revenues remain well below levels that are likely needed to achieve the SDGs, and to secure robust and stable growth.

This report is sector-specific, focusing on mineral products and markets (excludes hydrocarbons or agriculture). This is in accordance with the mandate for the work, but it also allows a focused examination of the unique characteristics of the extraction, transformation and sale of those products. Work is underway on several fronts, combining sector-specific policy and administrative responses (such as new transfer pricing guidance) with tailored country-level technical assistance.

Domestic Resource Mobilisation from Mining

Mining drives the economies of many developing countries. Mining and mineral product sales contribute to income growth, foreign exchange earnings and employment. In addition, governments rely on these products to generate revenue, which can boost living standards and help achieve the Sustainable Development Goals (SDGs).

Raising revenue from mineral product transactions can be challenging however. For countries that use these products as a key element of the tax base, sales prices are a crucial determinant of potential revenue, particularly when corporate income taxes (CIT) and ad valorem royalties are used.

The cross-border sale and purchase of mineral products between related parties creates base erosion and profit shifting (BEPS) risks. These transactions (between entities within the same MNE) risk separating substantive economic activity from where profit is reported and taxes are paid. One relatively straightforward form of base erosion is for MNEs to sell mineral products to a related entity abroad at prices below equivalent sales to unrelated parties, thereby moving sales revenue and profits offshore, to take advantage of lower tax rates abroad (see Box 1 for stylised example). In other cases, companies may engage in straight tax evasion by mis-reporting the value of product shipments they are making.

Box 1. Potential Revenue Impact – Example from Copper Sales

The example below shows a hypothetical situation in which an exporter of a mineral product – in this case a concentrate – could under-price the true value of their shipment to revenue authorities. As the table below demonstrates, the revenue impact of under-priced shipments can add up quickly. Revenue losses can be from, amongst other things, under-quoting prices, mis-specifying reference prices, excessive deductions or price adjustments, handling or other fees, or simply not declaring the presence of valuable by-products (e.g. gold and silver in a copper concentrate).

Copper Concentrate Shipment	**Market Price**	**10% Under-priced Copper**	**Copper under-priced, no gold declared**
	$m	**$m**	**$m**
Gross Value of Cargo FOB [A]	39.5	35.1	32.7
Production Costs [B]	22.5	22.5	22.5
Royalty [C]	1.7	1.5	1.4
CIT Base [A-B-C]	15.4	11.1	8.8
Company Tax Payable [D]	4.6	3.3	2.6
Total Revenue per shipment [C+D]	6.3	4.8	4.0
Potential Revenue Loss Per Shipment		**-1.4**	**-2.2**
Potential Annual Revenue Loss		**-71.4**	**-112.3**

Source: OECD calculations based on price data from World Bank Group (Pink Sheets), Cost data from Thompson Reuters. Notes: All figures in USD. Assumes the functions, assets and risks of the parties in each case are comparable. The cargo is a 20,000 metric tonne shipment of copper concentrate exported from a developing country. 50 shipments per year. Each shipment contains 31% copper by weight and 4 grams of gold per tonne. Adjustments to the gross value of cargo are made for losses during smelting (1 percentage point of copper, 1 gram of gold). Production cost is assumed to be USD 1.70 per pound of copper – an approximate mid-point of copper producers. Royalty rates: copper – 3.5% of copper value; gold – 5% of gold value. CIT rate: 30%.

Mineral exporting countries – particularly developing countries – often find it difficult to assess whether this form of BEPS is occurring. As noted in the 2014 Report to G20 Development Working Group on the Impact of BEPS in Low Income Countries (Part 2):

> *"…countries often find it difficult to apply the criteria contained in the current international tax rules to assess whether intra-group transactions accord with arm's length practices and consequently, whether transaction terms in controlled transactions are excessive or unwarranted."*

There are diverse reasons why developing countries are vulnerable to this form of base erosion. These include:

- **Revenue authorities may be building their sector knowledge and administrative capabilities.** At the most basic level, authorities may not have a sufficient number of qualified staff to apply tax rules. In addition, authorities may be uncertain as to how particular mineral products are priced, which means they may struggle to test the validity of claims such as that particular product shipments are in some way 'unique' and therefore unable to be compared with other transactions. In addition, authorities may need assistance to build their experience with transfer pricing comparability analysis. This may occur where, for example, a country has a newly developed mining sector, or simply needs additional training in transfer pricing analysis and application (such as how to make transfer pricing adjustments in a systematic and reliable way).

- **Countries may not know what information they require or where to look for it.** Revenue authorities may have only limited resources available to search for comparable uncontrolled transactions, or may not be aware of publications that could assist.

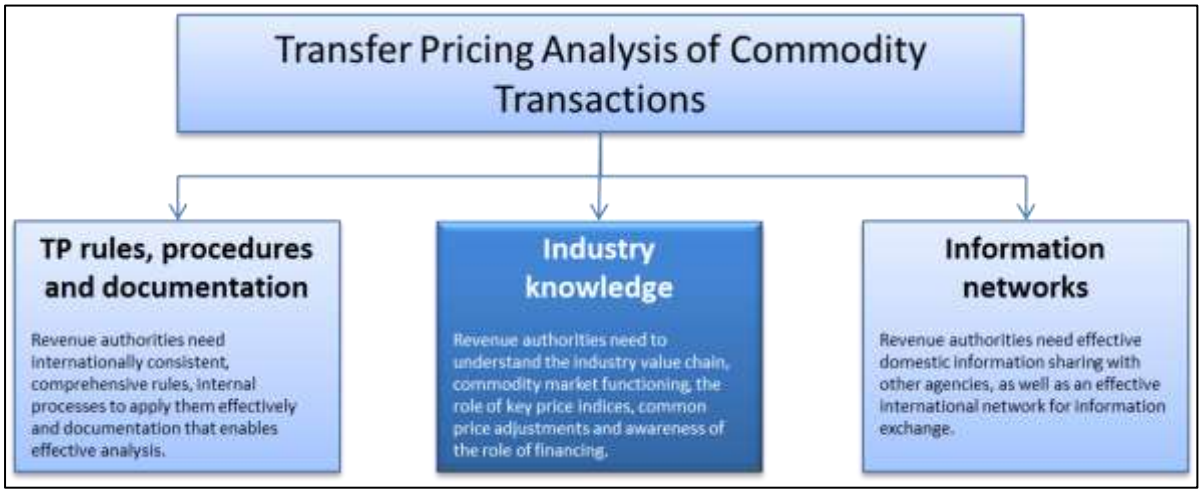
- **The information may be difficult or expensive to obtain.** This may be particularly challenging where formal and informal networks with fellow revenue authorities are limited, or where taxpayers deliberately place information on a transaction in locations offshore that make them difficult to obtain. Procurement rules and/or a lack of funds may also limit information purchases by revenue authorities.

- **The information needed to review transactions simply may not exist.** For example, for some rare earth elements, transactions may be so infrequent and opaque that finding an international reference price or comparable transaction may be almost impossible.

In response, this is a practical report to assist developing countries to improve their understanding of how mineral products are priced. This is also an important step in informing transfer pricing analysis of the income of MNEs, emphasising the importance of building industry-specific knowledge that countries can then extend and apply to their domestic mines as needed (see Box 2).

Box 2. Comprehensive Tools and Information are Needed for TP Analysis

Transfer pricing rules can be a complex area of tax law, requiring specialised officials. Applying transfer pricing rules to mineral sales often requires information from multiple sources, which is applied to firstly assess which transactions pose significant risks of base erosion via transfer pricing, and then to analyse transactions in detail. TP adjustments may be needed where related party transactions are assessed to be inconsistent with comparable arm's length transactions.



This report does not address all issues related to the transfer pricing analysis of mining MNEs. Addressing base erosion risks requires support across several fronts, including legislation, processes, accessing information and data, and sector-specific knowledge. This report therefore forms part of a suite of tools and activities (such as the toolkit on comparability analysis, and information exchange initiatives), and also builds on the tailored, country-specific assistance being provided through the International Organisations and other technical assistance providers.

Toolkit Structure

The structure of this toolkit is as follows: It begins by outlining a systematic process to help developing countries map the transformation chain for a particular mineral; identify key traded products and establish common pricing practices. To demonstrate the process, the OECD has applied it to deliver detailed case studies on copper, gold, thermal coal and iron ore. For each mineral examined, the report also provides a list of data sources available to revenue authorities. The report concludes with comments on possible future direction of this work, and where additional related work would help meet the needs of developing countries.[145]

[145] The choice of method for transfer pricing analysis is not discussed in this report. Rather, the focus of this study is to provide industry details that would help tax officials better understand the extraction and sale of mineral products.

BUILDING AN UNDERSTANDING OF THE MINING SECTOR – A METHODOLOGY

Introduction

Building an understanding of the mining sector operating within a country can be challenging. But as noted earlier, it is an essential component to understanding potential base erosion risks and to applying transfer pricing analysis. The key is to build that knowledge in a systematic way.

The OECD has developed a systematic process to assist revenue authorities to build their understanding of mining products and pricing practices. The process has 6 steps which sequentially help officials understand the profile and structure of the domestic mining industry, the mines in operation and what they are producing. Once the mining sector has been mapped, this allows administrators to identify key mineral products to be examined, as well as data that may be needed to assist in understanding the economic context of the industry.

As mineral product knowledge becomes increasing sophisticated, information asymmetries should narrow and revenue authorities should be able to use market pricing information more effectively. Naturally, different revenue authorities are at different stages of expertise with mining practices and mineral product markets, which will affect the amount of time needed for each step. Revenue authorities can then use this information to inform their transfer pricing analysis. In addition, this knowledge should help to narrow areas of dispute with taxpayers based on misunderstandings of common industry practices.

Steps in the Methodology

The first step is to review each mine for how minerals are extracted and transformed to saleable products. This is essential to understanding what extraction and transformation methods might be possible (for example, leaching processes or gravity separation processes), the extent of local value adding that may be possible and the machinery and equipment that the mine will use during production.

Steps	Focus Questions to Build Sector Knowledge
Step 1: Identify the type of mine and production methods.	❑ What kind of mine is it? ❑ What type of ore is the mine extracting? ❑ What products can be produced from the ore? ❑ Who verifies the products produced? *(for example, is testing/assay reliable?)* ❑ What method of transformation and beneficiation is used to

	produce those products? ❑ Where does this take place? ❑ Does this mine have similarities with other mines domestically? *(These similarities might be in, for example, inputs used; products produced; transportation methods employed; and/or customers.)* ❑ What entities are involved in the transformation and what are their key functions?

The second step is to identify in detail the actual products each mine produces and sells, and whether the processing facilities are also used by third parties under tolling arrangements. This means understanding the exact products the mine produces (for example, iron ore concentrate or "direct shipping ore") and the economic context for those decisions. By-products should also be looked for. There may be occasions where the mine offers its processing facilities to other mines on a tolling basis.

Step 2: Identify the mineral products coming from the mine.	❑ What product quantities are being produced per month/year?
	
	❑ Is the mine's beneficiation equipment used to process ores from other mines (e.g. on a tolling basis)?
	
	❑ Who is checking this production and is the check reliable?
	
	❑ How will those products be transported when they are sold?
	
	❑ How will they be exported?
	
	❑ Who will the mining company sell the product to?
	
	  ❑ In particular, are they a related party?
	
	  ❑ If so, where are they located?
	
	❑ Is this product routinely sold to independent parties (i.e., at arm's length?)
	
	  ❑ If so, under what terms?

The third step is to understand what those products are used for, what drives their prices and how they are traded internationally. This means understanding who potential customers for the product might be (for example, smelters are a key buyer of copper concentrates, as are traders looking to arbitrage the product to make profits) and what features those buyers expect from the product (for example, do they expect low levels of impurities?).

Step 3: Understand the price drivers for those products and how they are traded internationally.	❑ What are the key features of the product market? *For example, is it a global market, or regional?* ❑ What are the market conditions and concentration of buyers and sellers? Are they changing? ❑ What adjustments are made to account for physical attributes, and which have the largest potential impact on price? ❑ Is the product traded on an open exchange? *for example, the London Metal Exchange?* ❑ If so, on what terms? ❑ Are there other physical features that can affect price, such as the size of the ore pieces? ❑ Does the location of the product or delivery date materially affect the price? ❑ Is the transaction a one-off or part of a longer-term agreement between the parties?

The fourth step is to identify related party sales and understand the economic context to those transactions (including their functions, assets and risks of the related parties). This means understanding the economic model of the MNE, and how they have structured their international business affairs, including for example, where production decisions are made and which entity within the MNE will manage key business risks and find buyers). It also means understanding the evolution of product trading and key terms that will be part of a contract (for example, whether "price participation" clauses are appropriate).

Step 4: Understand the economic context to the transactions.	❑ Has the taxpayer entered into a controlled transaction at this point in the process?
	  ❑ If so, obtain details of:
	  ❑ who sold to
	  ❑ where they are tax resident
	  ❑ documentation of the transactions including composition of the traded product, transportation details, payment details
	❑ Has some of the product been sold to a third party? If so:
	  ❑ who was it sold to and where are they tax resident?
	  ❑ What documentation exists (e.g. sales contract) that describes the key terms of the transaction including composition of the traded product, reference prices used, transportation details, payment details
	❑ Does the taxpayer have a unique production process or are all the processes the same? Are they publicly known?
	❑ Have assets (related to the production process), and mainly, valuable unique assets been purchased by the taxpayer from a related party?

The fifth step is to identify available information, analysis and data that could be used to review product sales transactions between related parties. This means finding data publications, databases and other information that could assist officials to establish whether the MNE's transactions are in line with common industry approaches and trading at particular times).

Step 5: Identify data and other information that could assist in reviewing the transaction.	❑ Is there data that could be used to compare the transaction (either publicly available or available for purchase)?
	
	❑ How reliable is that information? *(for example, would it be accepted as evidence in a dispute in a court? Do other mining companies use this data?)*
	
	❑ Would the information need to be adjusted to ensure it is comparable with the transaction under review? *(for example, to adjust for geographical or quality differences)?*
	
	  ❑ Can this be done reliably?
	
	❑ How much does it cost to purchase the information?
	
	❑ Is the information easy to use?
	
	  ❑ If not, is support provided to use the data?
	
	❑ What revenue is at risk?
	
	  ❑ How does this compare to other revenue risks?

The last step is to devise approaches or methodologies that can address as many of those information gaps as possible. This issue is addressed comprehensively in the Toolkit on Comparability, but includes where to look for additional data, and which transfer pricing methods might be most appropriate given the facts and circumstances of the taxpayer.

Step 6: Devise a way forward when there are information gaps.	❑ Are there alternate sources of information? *(for example, could information on smelting or refining costs be obtained from elsewhere?)* ❑ Are there commonly used methodologies to derive a price from another product? ❑ Would these withstand dispute resolution processes? ❑ Is it worth investing in additional data or consultancy expertise? ❑ If so, how much will this cost? ❑ How long will it take to receive the information? ❑ What legal powers are available if the taxpayer refuses to provide information? ❑ Which other countries might be able to assist? ❑ Can informal country networks help reinforce understanding of key pricing practices for that product? ❑ Can information be obtained through formal information exchange mechanisms? ❑ Do taxpayer documentation requirements enable satisfactory review of transactions?

WIDER ISSUES CONNECTED TO MINERAL PRODUCT PRICING

Relationship Between Prices under Corporate Income Tax and Royalties

A common issue that producing countries must confront is how their royalty systems and corporate income tax (CIT) treat the value of shipments of mineral products. Often the prices used for each of these will not be the same, even though on the face of it, it may appear that they should be.

One key issue is the point on the transformation chain at which each is imposed.

- Royalties are typically applied to products at the early stages of the transformation chain, for example they may be imposed at the point the minerals leave the mine site (the "mine gate"). This approach is used so as to impose the tax on the value of the extracted mineral, rather than any value-adding associated with beneficiation.[146]

- CIT on the other hand is typically aimed at taxing profits from value-adding activities. It is usually applied to the net profits from product sales (i.e. sales revenues, less allowable deductions). Within MNE groups, this sale may occur at any point on the transformation chain, including where the mineral is in a form not usually traded between third parties (e.g. blister copper – see Copper Case Study).

Another issue is the operation of transfer pricing rules under CIT. Where the international transfer pricing standards are used, wider contextual and business factors - such as the economic circumstances to the transaction, the functions, assets and risks of the parties to the transaction[147] and the contractual terms of the transaction - are taken into consideration in computing an arm's length price for the purpose of CIT. Most commonly, the Comparable Uncontrolled Price method would generally be an appropriate way of establishing the arm's length price for the transfer of commodities between related parties. Where this is the case, and the taxing point noted above is the same for royalty and CIT purposes, there is likely to be a high degree of consistency between the price used for royalties and the price used to calculate CIT liabilities.

Some countries have attempted to simplify these arrangements by defining pricing mechanisms. This may be for royalty calculations or for CIT, particularly where countries are concerned about systemic mis-pricing of transactions or their capability to analyse these transfer prices. These pricing mechanisms may be specified in legislation or regulations, or agreed with companies in Advance Pricing Arrangements. These transfer pricing issues are discussed in depth in the related Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses.

[146] Some countries attempt to approximate this by reducing royalty rates if beneficiation occurs before the products are sold.
[147] As well considering the functions, assets and risks of any comparable transactions between unrelated parties.

Long-Term Supply Agreements

MNE groups typically formalise the roles of various group entities by concluding contracts between them. For entities involved in mining activities, the contractual arrangements may often specify that the mining company will focus on production, whilst other entities are allocated responsibility for related functions such as procurement and finance. This means there will often be instances where the producing entity agrees to sell all mineral products from the mine firstly to a related party (typically offshore), who in turn then disposes of the mineral product either to another entity within the company group or to arm's length parties.

These agreements often cover the mine's total production over its (remaining) life. The parties may agree a fixed price for all shipments in a period meeting certain quality specifications, or they may prescribe a pricing formula based on a transparent reference price.

This can complicate the use of spot price transactions as potentially comparable transactions for transfer pricing analysis, because these agreements modify the economic relationship between the parties.[148] As a result, a long-term sales agreement must be read in the context of other arrangements that may exist between the parties (and their actual conduct).

There can be various motivations for these agreements, and it is important to examine the actual conduct of the parties as well as the intention of the parties in forming the agreement and the benefits that each party receives. Both parties should benefit from such an agreement, even though the distribution of benefits will depend on a number of factors. For example, these agreements may formalise:

- The transfer of a business function such as sales and marketing, with the buyer then taking responsibility for activities that could include finding independent customers for the product, negotiating sales, collecting payments and arranging product shipments. The buyer's purchase of the mineral products will be for the purpose of resale.

- The transfer of production risks to the buyer, who is then entitled to all mine output. In this arrangement, the contract specifies that the seller pays its counterparty in return for no longer bearing the risk associated with having to find buyers or manage inventory fluctuations that might arise due to changes in market conditions.

- An arrangement to induce the seller into a repeat relationship with the buyer for business beyond the initial contract, such as by affording an initial "trial" price of the product to demonstrate its characteristics, or simply in order to gain the goodwill of the buyer.

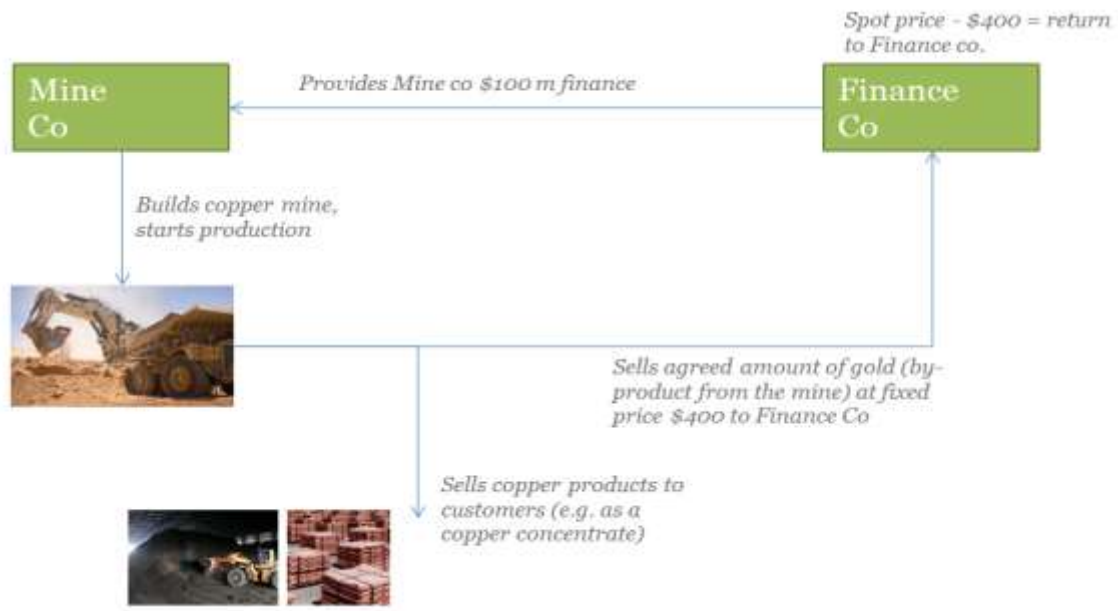
- Arrangements to repay or otherwise remunerate the buyer for the prior provision of capital, such as to construct or expand the mine (see Box 3 on metals streaming for an example).

[148] This can also be the case where there is significant vertical integration in the extraction and transformation of a mineral, such as in bauxite/alumina. This will be examined further in 2017.

Box 3. Financing Arrangements Affecting Transacted Product Prices - "Metals Streaming"

In recent years, mine construction financing arrangements that are tied to subsequent mine production have become increasingly common. They can fill a financing gap for mining companies where capital is not available from traditional sources such as banks. But these financing arrangements can reduce the tax base of mineral producing countries and transfer profits offshore. This is because they result in mines selling a portion of their mineral products or mine by-products at severely discounted prices (see example below).

Figure: Example of Metal Streaming Transaction



Note: *In this simplified case, Finance Co provides Mine Co $100 million for the construction of Mine Co's copper mine, in exchange for the right to purchase a percentage of metal by-products (from copper mines, this could be gold, silver and/or platinum group metals for example). The purchase price is set at a deep discount to prevailing spot prices. Once mine production begins, Mine Co sells the agreed quantity to Finance Co at the agreed price or at the spot price if it is lower (Gowlings, 2015). The Finance Co would then sell its metals at prevailing spot prices. In this way, Finance Co recovers its investment.*

Streaming agreements can be between unrelated or related parties, with terms that appear relatively advantageous to financiers. For example, significant risks are borne by the mining company, such as the risk the mine is not brought to production (addressed by the financier obtaining title over a share of the proven reserves of the mine) and any cost over-runs in bringing the mine to production must be met by the mine. In addition, the commitment to selling mine output is applied over the life of mine in many of these arrangements, meaning the sales commitment also applies to additional discoveries.

Streaming reduces the tax base of resource producing countries, where fiscal settings (such as ad valorem royalties and CIT) use sales revenue as part of tax calculations. In addition, since the amount of financing provided is linked to the discounted price, mines have strong incentives to agree to lower fixed prices, since this increases the up-front finance provided to them. Streaming agreements also pose challenges for revenue authorities because they contain both debt and equity characteristics, which can add complexity for developing countries and give rise to mismatches in tax treatment if different tax authorities treat the same payments in different ways.

Moreover, product sales require careful transfer pricing analysis when undertaken between related parties to identify possible base erosion through transfer pricing. Also adding to the challenge for developing countries, participants may locate the agreement in a jurisdiction where the relationship of the parties is difficult to establish.

These economic exchanges can have different remuneration mechanisms. For example, remuneration may be in the form of the buyer receiving a percentage discount off the value of each shipment, or by the payment of a flat fee. Alternatively, it may be harder to establish the remuneration if a discounted price or relatively favourable (i.e. longer) payment terms are used.[149] Details on remuneration and other relevant facts may be added later, for example as annexes or even via correspondence outside the formal agreement.

The practices and levels of remuneration for these exchanges may be limited to a particular mineral or group of minerals. This means revenue authorities should check whether the practices claimed actually apply to the mineral products under review. Some practices may be used commonly for one mineral but seldom for others (if ever). For example[150]:

- Remuneration for handling mineral product sales functions is likely to be more justifiable where there is an ongoing need to find and maintain a base of customers, such as can be the case for bulk commodities. In contrast, this would not typically be the case for gold doré sales, where refineries pay for unrefined precious metals using prevailing spot prices. In this latter case, there would be little justification for a mine needing to maintain a network of refined gold customers, given the homogeneity of refined precious metals. However, even in cases where such remuneration may be justified, the appropriate amount of the remuneration will need to be carefully considered taking into account all the other economically relevant characteristics of the transaction, including the functions, assets and risks of each party.

- Price discounts to attract new customers are used in many industries, but should be examined in a demand and supply context. For example, a mineral product in tight supply would have less reason – if any – to offer discounts to induce repeat customers. In the case of encouraging a new buyer to try a product, this incentive can diminish the longer the economic relationship continues between the parties.

- Agreements that aim to transfer certain risks to a related party purchaser are also common, but the substance of the transfer would need examination. For example, situations where the actual transfer of title to the output under the agreement is for only a very short duration (e.g. a split second or several hours); the title does not transfer until such time as a third party customer for the shipment has been arranged, and the price for the product is subject to prevailing market conditions, might raise questions as to who is actually bearing the relevant risks. Similarly, an agreement with a broad range of events under which the buyer could actually refuse shipments could raise questions as to whether they actually do take on the risk in difficult circumstances.

[149] Often a contract will not explain why a discount exists.

[150] However, it is not to say there are never any circumstances where a taxpayer could demonstrate consistency with the actions of independent parties, but as always, the taxpayer would need evidence to substantiate their explanations.

The existence of a long-term contract need not mean the CUP method based on quoted prices for transfer pricing analysis cannot be applied. The contract will often still have a pricing formula for the mineral products being shipped, and this could be compared against common industry practices if such products are routinely traded between unrelated parties. In some cases, a range of quoted prices for a product may be available, including those for different quotation periods, which could be used to inform an appropriate arm's length price for the product under a long-term contract. The remuneration of other activities (such as the performance of functions or assumption of risks) may need to be analysed using other transfer pricing methods.

Fixed prices in long-term contracts

It can be challenging to analyse the exchange of economic benefits when related parties use fixed prices in long-term contracts. This is particularly since there will often be few (if any) transactions between independent parties that are immediately comparable without the need for adjustments.

Tax officials must consider the information reasonably available to the business at the time the agreement was made in evaluating the appropriateness of such prices and other contract terms, rather than what actually happened to prices *ex post*. To inform the process, an MNE taxpayer would need to provide evidence as to how that price was set. This might include the analysis of independent price forecasters or analysis of prior price movements. A conceptual lower limit could be the price that would recover the costs of building and operating the mine over its expected life, plus an equity return commensurate with the use of that capital and the risk of the project. Tax officials should also ensure fixed price decisions were, in fact, made at the stated time and not engineered at some later date to select the most advantageous price.

The conduct of the parties during the execution of the agreement is important in ensuring the contractual allocation of risks allocated actually accords with reality. This includes whether the actions of both sides are consistent with the allocation of risks and responsibilities between them. For example, events that disrupt markets (such as a dramatic drop in demand for the mineral product) might shed light on whether the seller has actually transferred risks to the purchaser. In such a situation, the ability of the purchaser to take delivery of the mineral product would be tested, and evidence that they do not in fact take title in this situation would raise questions as to whether the risk actually remained with the producer. An offtake agreement covering all mine production for example, should have only very limited circumstances in which the buyer can refuse to take delivery of products meeting contract quality specifications.

THE MINERAL PRODUCT CASE STUDIES

The OECD has prepared several case studies on the key mineral products produced at different mines. These case studies are intended to provide developing countries with detailed industry information and contribute to building greater mining sector knowledge in tax administrations.

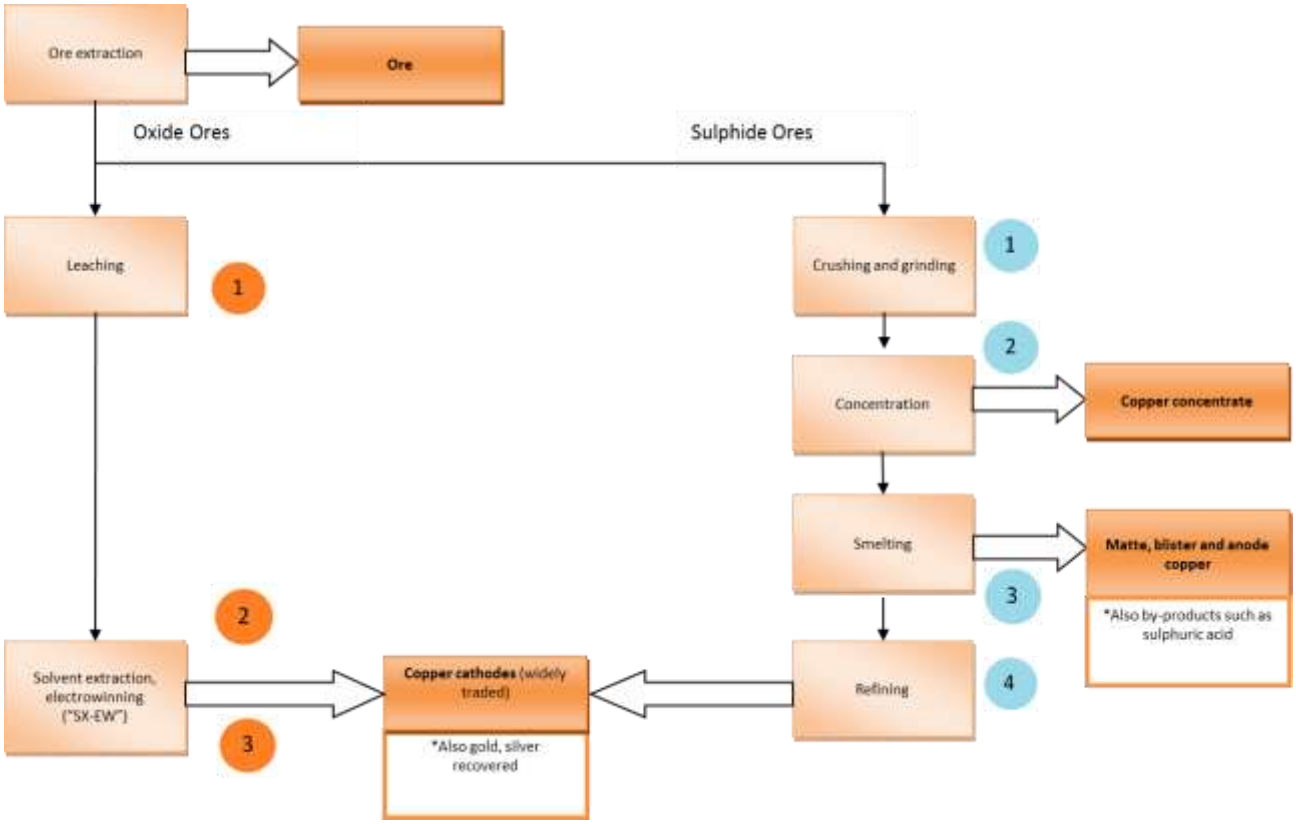
The case studies are on products from copper, iron ore, thermal coal and gold mines. These minerals were chosen because each has products that are commonly sold in intermediate forms and because each is particularly relevant to many developing countries. These studies are focused on medium and large-scale mines, since these are predominantly operated by MNEs.

Copper	Copper is an important metal across numerous industries due to its thermal and electrical conductivity. Its applications include in construction and telecommunications. It is also resistant to bacteria and fungi, making it useful to applications such as cooking equipment and water sanitation. The process for transforming the copper ore to pure metal depends on the type of ore (oxide-based or sulphide-based). Many developing countries such as Peru, Zambia and Kazakhstan export copper as a concentrate, which is a powder typically containing around 30 percent copper following initial beneficiation. Some countries such as Zambia also export copper anodes and others, as Democratic Republic of Congo, export refined copper cathodes.
Iron Ore	Iron ore is a bulk commodity that provides the ferrous content for steelmaking. The collective use of "iron ore" refers to several different types of deposits, which can be broadly grouped into "high-grade" and "low-grade" ores. High-grade ores of between approximately 50 to 65 percent iron are made up primarily of hematite, while low-grade ores are primarily composed of magnetite (contains up to 30 percent iron) and taconite (usually less than 30 percent iron). Key exports for developing countries are iron ore fines, lumps, concentrates, pellets and sinter feed. For countries with higher-grade ore, these are more likely to be exported as fines or lumps, whilst for countries with lower grade ores, further domestic beneficiation is usually required to create concentrates, pellet or lump products. Along with traditional exporters such as Brazil and South Africa, Sierra Leone, Liberia and Mauritania are all emerging as iron ore exporters.

Thermal Coal	Thermal coal is a bulk commodity used primarily as an energy source (for electricity generation). Thermal coal varies by grade, based on energy content, and levels of impurities. Coal from different mines may be blended, for instance to achieve a particular energy content, with coal products sold either directly to final users (such as electricity suppliers and cement producers) or via traders. Thermal coal is predominantly traded as ore, or cleaned up to produce concentrates. Key developing country exporters include South Africa, Indonesia and Colombia.
Gold	Gold is a precious metal with a strong resistance to chemical and environmental deterioration; wide use in jewellery; and function as a financial asset. Gold is mined in its own right, but it is also recovered as a by-product from other mineral deposits (such as copper) with other precious metals. Gold is usually exported from medium and large-scale mines in developing countries as unrefined doré bars for refining elsewhere.

Case Study: Copper

Mining Production and Key Products



Copper Mining

To separate the copper ore from the surrounding rock, drilling and blasting processes are used. The broken ore is then conveyed to a stockpile for further processing. At this point, the copper content is typically 1-2 per cent by mass or less. Other valuable metals may also be present, such as gold, silver, nickel and cobalt – indeed many mines are 'multi-mineral'.

The ore may be of consistent grade or, if not, be separated by grade into different piles. It is then taken to be broken down into smaller pieces of roughly uniform size at a mill. This may be at the mine site, or the ore transported to an off-site mill by road or rail.

Crushing and screening are the first steps of transformation. For sulphide-based ores, the ore will be ground down further in preparation for concentration processes. For oxide ores, the rocks will be heaped in preparation for leaching processes.

COPPER OXIDE ORE

1 Copper oxide ores usually follow a **leaching process**.

The ore is heaped into piles in special leaching areas, and a sulphuric acid solution is sprayed over the heap to gradually dissolve the copper, separating it from the surrounding gangue. The copper-rich liquid is collected in pools and pumped into a plant for refining.

2 An organic solvent is added to the solution, which binds with the copper.

The copper-rich electrolyte floats to the top of the liquid and is separated off and pumped through to the next stage of the process. This is known as **"solvent extraction"**.

3 An acidic solution is then added to increase the concentration of copper and allow the liquid to conduct electricity. The liquid is moved to tanks containing thin sheets of either copper ("starter sheets") or stainless steel ("blanks"). An electrical charge is applied to the liquid, causing the copper to attach to the sheets. Over approximately 10 days, the starter sheets fatten to a width of 2.5 centimetres, forming 99.9

SULPHIDE ORES

1 Sulphide-based ores follow a **separation-smelting-refining process**.

The ore is ground to the consistency of sand, and then mixed with water and chemicals to coat the copper sulphide particles, along with a frothing substance.

2 This slurry is moved to **flotation** tanks, where air is pumped through the mixture, forming bubbles which attract the chemically coated copper sulphide. The bubbles float to the surface and overflow or are skimmed off, filtered, and then dried to form a powder (copper concentrate). This process is usually able to recover 85-95 percent of the copper in the ore.

At this point the dried concentrate contains approximately 20-30 percent copper by mass, around 30 per cent iron, 30 per cent sulphur, with the remainder including small amounts of gold, silver, and unwanted elements such as arsenic and mercury.

Exported copper **concentrates** are transported by sea as a bulk commodity, either in drums, packages, or as loose powder.

3 **Smelting** removes most of the iron, sulphur and other unwanted materials from the concentrate. The concentrate may be initially roasted to remove sulphur and moisture.

The concentrate is combined with silica sand and limestone and transferred to a furnace. As the materials melt they separate, with the heavier copper sinking to the bottom of the furnace, while the silica, which draws away impurities, floats and is poured off as slag.

Following this furnace process, the copper is in **'matte'** stage with copper concentration

percent copper cathodes. This process is known as **"electro winning".**

between 50 and 70 percent. In most instances the matte is transferred directly as a molten liquid to a converter, but it may also be poured into ingots, cooled, and moved to a separate facility.

In the converter, more silica is added to the matte and air is blown through the furnace to again melt the materials and separate the copper from another slag containing the iron. Following this process, the copper is known as "**blister**" copper, and is typically around 99 percent pure. Small impurities including oxygen, sulphur and iron are still present, requiring further treatment. Depending again on the type of smelter, the blister copper may be cooled and shaped into ingots for transportation to another facility, or carried directly to an anode furnace for casting.

During the casting process, natural gas is blown into the melt to burn off excess oxygen. At end of the process, molten copper of approximately 99.4 percent purity is poured into moulds and cooled. These shapes are **'anodes'**.

4 **Refining** is the final step in the production of effectively pure copper. The anodes are refined using an electrolytic process where the anodes are placed in tanks with a sulphuric acid solution along with fine "starter" sheets of pure copper. An electrical current is applied to the solution causing the anodes to dissolve and copper to attach to the starter sheets, eventually forming 99.9 percent pure copper cathodes. Precious metals do not dissolve in the solution, instead dropping to the base of the refining cell and forming **'anode slime'**. This slime is collected and the precious metals recovered through a leaching process.

Pricing Practices

The copper products most commonly traded at arm's length are copper concentrates and refined copper cathodes. Trade in copper ore is uneconomic because much of the ore material is gangue (i.e. commercially worthless).[151] Blister and anode copper products are traded, but these markets are more opaque because transactions occur much less frequently.

Copper Concentrate Pricing and Market Conditions

Copper in concentrate is traded widely between independent parties, and final contract terms depend on the nature of the relationship between buyer and seller, as well as prevailing market conditions. In addition, terms may change over time as market conditions change (see Box 4 below).

Box 4: Copper Concentrate Market Conditions

Understanding the economic context to a transaction is an essential element of considering whether it is likely to reflect trades between arm's length parties. Factors influencing prices include:

- **Customer identity**: Smelters/refiners are significant customers of concentrates, but transactions may also involve trading companies, either as stand-alone intermediaries or within corporate groups.
- **The nature of the transaction**: particularly whether it is short-term or part of a longer-term supply agreement. Longer-term arrangements may be preferred by small to medium-sized mines without extensive marketing and trading functions. In addition, mines may pay smelters to process the concentrate on their behalf ("tolling") without transferring ownership.
- **Market dynamics**: concentrate prices are affected by demand-supply conditions in the concentrates market directly, but also upstream market conditions (including copper mine production, the availability of raw materials) and downstream conditions (including the availability of refined copper and scrap).
- **Customer needs**: smelters seek concentrates best suited for the smelter. For example, smelters often seek a combination of clean and dirty concentrates based on the tolerance of the facility to impurities (the smelter may be able to blend in dirtier concentrates without suffering a loss in performance). In addition, smelters aim to operate at peak capacity, so will consider the reliability of supply, and may prefer to purchase from mines with a reputation for consistency and reliability.

[151] There may be parts of a mine that do produce "direct shipping" copper ore with copper percentages around 25 percent or above – for example the DeGrussa copper and gold mine in Western Australia owned by Sandfire Resources.

Components of an Agreement

The agreed price for concentrates is typically based on a formula, which is the sum of value of the contained metals ("payable metals") less the sum of deductions and penalties imposed. A typical contract would contain provisions to:

- calculate the value of payable metals;
- calculate deductions and penalties (typically, treatment and refining charges, and penalties for impurities and/or penalties for excessive moisture where needed);
- outline other concessions that may be extracted by the purchaser, such as "price participation";
- allocate related costs such as insurance, sea freight, taxes and duties; and[152]
- outline payment terms.

Assay of the concentrate is essential to pricing calculations, because the physical characteristics of the concentrate directly affect its price. The further away from standard specifications, the more adjustments that could be expected to attain the final agreed price.

Payable Metals - Copper Reference Price

The agreed payment will be based on the percentage of copper present in the concentrate, which is valued by referencing the price of refined copper on one of the major commodity exchanges: the London Metal Exchange (LME); Shanghai Futures Exchange (SHFE) or the Commodity Exchange Division of the New York Mercantile Exchange (COMEX). Taking the LME as an example, contracts would typically specify the "LME Grade A Settlement Quotation price" as the reference price for payable copper, averaged over some time period (the "quotation period").

For products early in the value chain such as concentrates, contracts usually refer mechanically to this exchange price. For example, the quotation period may be the average price during the third month after the month of scheduled shipment, reflecting expected delivery time to the smelter. For copper products later in the value chain, however, the specific details of the reference price – in particular the physical location of the metal - take greater importance (discussed under copper cathodes, below).

Payable Metals – Losses

For common concentrate grades of around 30 percent copper, the payable metals percentage will typically align with the actual percentage of copper present. However, an adjustment is also

[152] Contracts between related parties may also contain commissions for the sale of the concentrate to third parties. Further research is continuing into these fees, but broadly, they relate to the functions performed by the intermediary which affects the fee structure adopted. They may be embedded into the contract by directly reducing the payable metals amount.

made to account for the fact that the buyer (e.g. a smelter) cannot recover all of the copper during the smelting and refining processes. Rates of recovery vary between smelters, but payments are typically adjusted in a routine way with more efficient smelters taking advantage of their efficiency by receiving essentially "free metal". For concentrates around 30 percent copper, smelters typically pay for 96-97 per cent of the value of the copper present, so a concentrate with 30 percent copper might actually be paid for around 29 percent copper.[153] Below 30 percent, typically the payable percentage is reduced by 1 unit (100 basis points). Below 22 percent, the deduction increases to 1.1 percent (Boliden, 2008). Conversely, if the percentage exceeds 30 percent, the smelter might reduce the recovery adjustment.[154]

Payable Metals – Precious Metals (Gold and Silver)

For gold, quantities below 1 gram per dry tonne of concentrate typically do not receive payment, because they are uneconomic for smelters to recover. For gold above one gram per tonne, the concentrate buyer typically pays based on the London Bullion Market Association (LBMA) gold spot price (see Gold chapter for pricing information), noting that only around 97.5 percent of the material is paid for, to account for metals lost during the recovery process.[155]

For silver, typically no payment is made if there is less than 30 grams of silver per dry tonne of concentrate. Above this quantity, the weight of the silver is multiplied by the LBMA spot silver price. The quotation period for both precious metals may match the copper quotation period. Sellers typically receive around 90 percent of the value of the silver, to account for losses during the recovery process (Teck, 2013).

Charges and Penalties – Treatment and Refining

Treatment and refining charges (TC and RC) are commonly applied to concentrate sales, reducing the payment to the seller. These charges are determined both on spot markets and in longer-term contracts. In forming spot TC/RCs, mines for example may produce more concentrate than they had expected during the year, which they will sell on spot markets to independent traders or to smelters with excess capacity.

Under longer-term supply contracts, annual TC/RCs are commonly used. These are based on annual negotiations between many of the largest global mining companies and major Asian refineries on key terms applying to concentrate shipments over the coming year (Boliden, 2008). These negotiations typically conclude by December each year, and the terms frequently

[153] 30 percent times 97 percent equals 29.1 percent.

[154] These percentages however can vary over time and across regions – for example, one Canadian Company observes that for a concentrate with copper above 32 percent, smelters would pay 96.65 percent, rising to 96.75 percent for copper above 38 percent.

[155] However, there appears to be a wide range of adjustments acceptable to revenue authorities – for example, the Australian state of Queensland accepts a deduction of 1 gram of gold per tonne of concentrate when applying royalties, with the adjusted quantity then reduced further by 10 percent. No adjustment is made for gold sold in any other form.

incorporated into similar supply arrangements between parties not involved in the agreement.[156]

TCs are usually expressed in US dollars per tonne of concentrate. For example, the 2015 TC was around USD 107 per tonne. TCs may increase for concentrates with copper content above 40 percent, but this depends on conditions in the concentrate market (that is, if it is hard to source concentrates, smelters may reduce the charge). RCs are usually expressed in USD cents per pound of payable copper in the concentrate. For example, 2015 RC was around USD 10.7 cents/pound (USD 23.6 cents per kg).

Charges and Penalties – Deleterious Elements

Concentrate purchasers will also seek deductions from payable metals for the removal of deleterious elements that exceed levels commonly found in concentrates (see Additional Information for a summary of these elements). Penalties may also be applied for concentrates with excessive moisture.

Charges will vary, depending on the process used to smelt and refine the concentrate, but typically the penalty is a USD per tonne amount for incremental percentages above a specified threshold. If too high, excess concentrations of some elements will result in the concentrate being rejected, usually because they either exceed environmental or safety limits; are unreasonably difficult (and therefore expensive) to treat; or the materials are expensive to dispose of (such as mercury).

A penalty TC for "complex concentrates" may also be imposed, but this will depend again on market conditions. For example, if smelters are struggling to acquire the amount/type of concentrates needed, this fee might be reduced or dropped.

Other terms

Additional terms may also be negotiated depending on market conditions. For example, until around 2007, smelters were able to negotiate additional payments from concentrate sellers known as "price participation" clauses, to share in higher metals prices. Another key factor affecting final price will be the costs of insuring and transporting the concentrate to the buyer. Concentrates are sold using several different incoterms (see Annex 1 of this Report) depending on the bargaining power of each side.

[156] News on these negotiations is commonly reported in the financial press.

Blister and Anode Copper

As noted, blister copper trading is less common and consequently pricing practices are more opaque. Blister and anode products are often sold from smelters to refineries, and this often is confined within corporate groups.[157] Consequently, there is much less pricing information available.

Similar to concentrates, pricing is based on a calculation of the value of payable metals less charges and deductions. As noted earlier, at the blister stage, the product is around 98 to 99 percent copper, and sellers paid based on the percentage of copper present. Payments are also made for precious metals, with an adjustment (reduction) applied to account for losses of metal during subsequent processes. Refining charges are applied also for the final removal of impurities, but these are lower than the RC applied to concentrates, reflecting the reduced processing required. Blister and anode copper are sold typically on a CIF basis.

Refined Copper Cathodes

Refined copper cathodes are, of course, traded globally using exchanges such as the LME and COMEX. For example, copper cathode prices are quoted on the LME, where the spot price has several features:

- It is published in USD per tonne of copper, along with corresponding exchange rates;
- It is based on the last cash offer price for a copper lot that would be "settled" (that is, paid for and the warrant delivered) in two business days;
- It is "Grade A" is copper that conforms to particular standard of chemical composition (essentially 99.9935 percent pure copper).

For cathodes, price setting reflects key pricing attributes including the physical characteristics of the metal (in particular, whether it complies with chemical composition standards imposed by commodity exchanges);[158] whether it is within or outside the official warehousing systems of the major exchanges; the location of the metal; and the delivery terms (in particular, how quickly the copper can be delivered – see Box 5 on Cathode Price Premiums).[159] Costs associated with delivery typically include rental charges for the use of warehouse space, load-out charges for removing the metal from the warehouse, and delivery costs to a specified location (LME, 2013).

[157] Within corporate groups, companies often use toll arrangements for certain transformations (e.g. refining) rather than transferring ownership of the intermediate product.

[158] See for example, the Physical Contract Specifications set by the LME for copper.

[159] Delivery date considerations are outside the scope of this paper, but their implication for price premiums is discussed in the Box on Exchange Prices and Price Premiums.

Box 5: Commodity Exchange Prices and Cathode Price Premiums

Exchange prices such as the spot price quoted on the London Metal Exchange (LME) are commonly used as a reference price to calculate payable copper for products earlier in the transformation chain (such as concentrates and blister/anode products). These exchange prices also form the basis of physical trades in refined copper cathodes, but the exact payments in a particular transaction are the result of several factors such as metal quality and proposed delivery time relative to other options in the market. This means LME spot price for copper cathodes may not be the only pricing information needed by revenue authorities looking to verify the price used in a related party transaction.

Exchange prices refer to a document of possession (a "warrant") for a standardised unit of metal ("lot") located at one of the network of storage warehouses approved by the exchange. For example, an LME copper warrant will be copper physically located at a specific warehouse - say, Rotterdam, the Netherlands. Copper that is traded on exchanges such as the LME can be used for physical product delivery, but where there are no major disruptions to physical supply, this is rare (for example, for the four months of 2015, 73,375 tonnes of copper were delivered from LME warehouses, compared to 373.4 *million* tonnes of copper traded on the LME over the same period [LME, 2015a]).

Under certain market conditions, cathode manufacturers may be able to offer their products at prices above exchange traded prices, thereby obtaining a "premium".[160] This is usually because they are offering products that will be physically delivered to the customer more quickly than the customer could obtain from suppliers elsewhere. The premium is typically enjoyed by all sellers offering the product to that market on those terms, although the extent of premiums may differ between sellers depending on their particular sales strategies. This is distinct from an isolated sale between two parties which may be at prices more favourable than contemporary market transactions.[161]

Whether a premium will form part of a related party transaction on copper cathodes will therefore depend on the particular circumstances of that transaction. Relevant factors include the physical location of the metal that is being sold relative to the location of the buyer and the delivery terms available to the buyer from other suppliers (i.e. whether delivery is faster than from other sellers in the market). For example, copper cathodes shipped from Australia to a purchaser in Europe could attract a European price premium if the delivery time matches European suppliers (all other factors such as cathode quality being equal).

[160] For example, in 2015 copper cathode suppliers to European market were able to achieve premiums of around 1-2 percent over the LME cash price, based on offering prompt delivery (usually 8-10 working days).

[161] Within the official warehousing systems of the major exchanges, premiums may also be paid in certain circumstances by cathode purchasers taking physical delivery of the metal. In particular, if the amount of metal a warehouse must deliver increases such that waiting times also rise, warrant holders wishing to receive cathodes more quickly may instead purchase a warrant that is higher in the delivery queue, paying the seller a premium over the cash price.

Additional Information: Impurities in Copper Concentrates

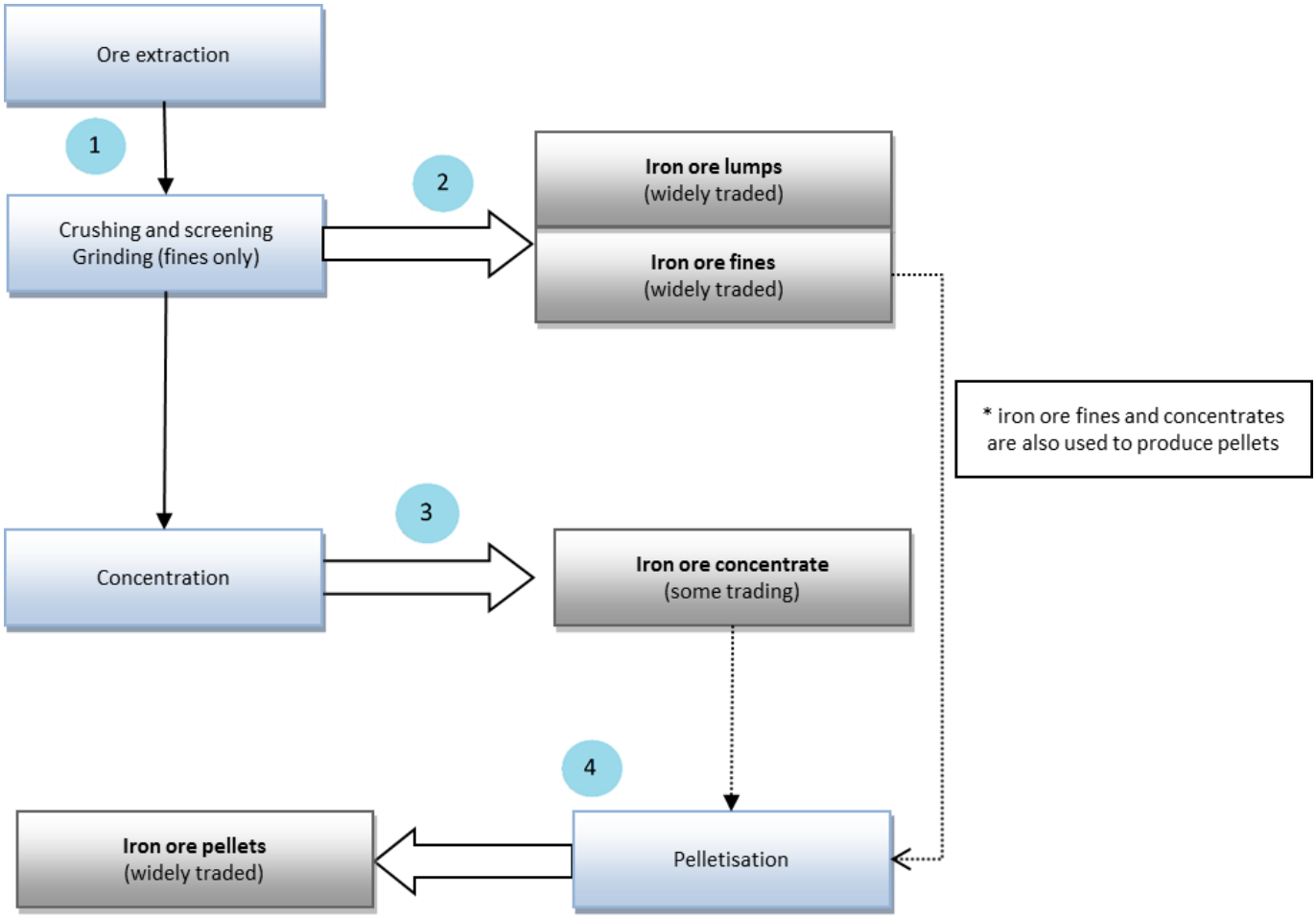
The table below outlines the common penalty elements that may be found in copper concentrate contracts. Please note - these tolerances are indicative.

Penalty Element	Reason for Penalty	For each %	Exceeding %
Arsenic	Reduces conductivity of copper, raises recrystallization temperature of copper, causes cracking at the copper grain boundaries. Also a known human carcinogen, requiring environmental mitigation measures. Expensive to dispose of.	0.1	0.2
Antimony	Reduces copper cathode conductivity, annealability (ability of the copper to be strengthened through annealing process), drawability (ability to stretch out copper rods into finer wire). Also a possible human carcinogen.	0.01	0.1
Bismuth	Causes cracking of copper rods, poor drawability even at very low concentrations. As concentrations increase, the copper will work-harden more quickly (broadly, the copper hardens when bent or deformed).	0.01	0.05
Selenium	Makes cathode copper more prone to cracking during wire drawing. Toxic to humans at higher concentrations. Combines with copper during refining, reducing amount of copper recovered.		
Tellurium	Increases the brittleness of copper, causing rod cracking and poor drawability. Combines with copper during electrolytic refining, reducing amount of copper recovered.		
Lead	Toxic to humans, requiring environmental mitigation measures.	1.0	1.0
Nickel	Nickel in anodes decrease the solubility of copper in the electrolyte liquid during the refining stage. It must also be removed from the electrolyte. Nickel is also a human carcinogen, requiring environmental mitigation measures. But the recovered nickel sulphate can be sold.	0.1	0.5
Cobalt	Toxic to humans at higher concentrations. But can be recovered and sold if concentrations are high enough.	0.1	0.5
Chlorine	Causes corrosion in smelter components such as smelter flues if it condenses as hydrochloric acid. Can require environmental mitigation.	0.01	0.05
Fluorine	Can pose significant difficulties for smelters if it mixes with water and forms hydrofluoric acid which corrodes and in high concentrations, causes health problems. Smelters are reluctant to accept concentrates with high fluorine, or charge significant handling penalties.	10 ppm	330 ppm
Cadmium	A toxic heavy metal classed as a carcinogen to humans, requiring mitigation measures.	n.a.	n.a.
Mercury	Highly toxic, raising waste disposal costs and can damage smelter equipment. Can remain in smelter gases, requiring the gas to be cooled below zero degrees Celsius to reduce its concentration. Techniques to remove mercury add to capital and operating costs. Requires disposal.	1 ppm	10 ppm
Zinc	In high enough concentrations, will increase viscosity of the slag during smelting, increasing the loss of copper.	1.0	3.0
Silica, Alumina, Magnesia	In high enough percentages, smelter melting point is increased, requiring higher operating temperatures (therefore more energy) to limit lost copper.	1.0	5.0

Source: C Fountain, The Whys and Wherefores of Penalty Elements in Copper Concentrates. n.a. – not available. Note: Uranium is also a problem element at high concentrations, making the concentrate harder to sell.

Case Study: Iron Ore

Mining Production and Key Products



Note: Iron ore fines and concentrates are also used to produce sinter products, which are similar to iron ore pellets. However, sinter products are difficult to transport and consequently not frequently traded

Iron Ore Mining

With the exception of hematite (discussed below), most initial beneficiation operations will result in the production of three materials: a concentrate; a middling or very low-grade concentrate, which is either reprocessed or stockpiled; and a tailing which is discarded.

Ores of different grades may be separated for different processing paths, and it is common for different parts of the ore to be used in different ways.

Iron Ore Production

1 Iron ores are extracted using drilling and blasting processes. Iron ore mines are predominantly open pit. Once the ore has been loosened by blasting, it is transported by large trucks directly to primary crushing machines which break it into smaller pieces. Screens capture pieces that are still too large, which are sent back to be broken down further. Crushed ore is then either taken by conveyor belts to holding piles, or moved directly to further crushing, screening and grinding.

2 ***Direct Shipping Ores (Hematite and a small amount of magnetite):*** Hematite may need only minimal beneficiation before it is able to be sold, particularly where its physical properties make it suitable as an input into iron and steel production (for example, the ore may be able to be fed directly into furnaces). For this reason, high-grade ores such as hematite are often called 'direct shipping ores' (DSO) or 'natural ores'. Hematite ore is generally taken to a mill for crushing and screening, which produces products such as "lumps" (pieces greater than 5 millimetres) or "fines" (pieces finer than 5 millimetres). Once the iron ore is at target size, it is often trucked or railed to port in preparation for export. Blending may also occur either near the mine or at the port.

3 ***Further Processing (Most magnetite, lower-grade hematite, and taconite):*** Magnetite ores require initial crushing and screening, but must undergo several additional processes to concentrate the ore and separate it from the gangue. These processes are typically magnetic and gravity separation, and flotation.

Magnetic separation utilises the stronger magnetic properties of magnetite relative to the less magnetic (or non-magnetic) gangue materials. Separation may be performed through several stages with each successive stage applied to finer particles. This can be done using either a dry feed or one mixed with water, creating slurry. Following magnetic separation, further separation may be required through the use of flotation.

Froth flotation is performed on intermediate to low-grade ore to remove waste rock and impurities. There are 5 major flotation processes ("routes"), targeted at separating out silica-rich materials such as quartz and to a lesser extent, other impurities including phosphorous and alumina in particular. The process essentially involves mixing the iron ore material with water and coating the iron minerals with chemicals so that they repel water (become "hydrophobic"). In a large tank, air is pumped through the mixture and agitated to form bubbles. Iron minerals in the mixture attach to the surface of the bubbles (adsorb) and float to the surface. This allows the foam to be separated off. Silica remains in the tank and is pumped out as tailings, with some of the iron that cannot be recovered. The foam is dried to form a powder, or may also be shipped "wet".

These concentration processes create iron ore products typically around 57 to 65 percent iron. The concentrate will be sold or used to produce iron ore pellets or sinter feed.

4 ***Pelletisation:*** Iron ore pellets are used by steelmakers in blast furnaces, and in direct reduction steel making plants. To produce, finer iron ore grains are bound together and thermally treated. This is done at a pelletising plant. The iron ore concentrate is ground to a fine powder and mixed with binding agents such as bentonite clay, flux materials such as limestone, and other materials as needed - for example, hematite ore might be mixed with coke or anthracite coal as an internal fuel. The mix is then filtered to remove water, and rolled into balls ("greenballs") that are around 9 to 16 millimetres in size. These balls are screened to ensure they meet target size, and sent to be hardened by drying and progressively heating them to 1200-1350 degrees Celsius. Finally, the pellets are cooled and prepared for transportation. At this stage, pellets are typically 65-70 percent iron, with low levels of impurities.

Pricing Practices

Iron ore products are diverse, targeting a range of customer requirements. The most traded products are iron ore fines, followed by pellets and iron ore lumps. Iron ore concentrates are also traded but make up only a small proportion of international trade (CRU, 2014).

The significant size of the steel industry in China means transactions with Chinese firms play an important role in iron ore demand and price setting. For example, China represented 55.8 percent of apparent iron ore consumption in 2012, followed by Japan at 7.1 percent and India at 6.2 percent (World Steel Organisation, 2015). Many pricing publications consequently focus on transactions with delivery to Chinese ports or regions as being indicative of international market directions.[162]

Iron ore pricing has undergone considerable structural change over the last decade. Prior to 2010, the majority of iron ore contract prices were set in annual negotiations between large iron ore suppliers and steel makers. Those agreed prices then formed a basis for other market transactions, between parties not connected to the initial negotiations.

From 2010 however, contracts moved increasingly towards quarterly or monthly terms as they expired and were renegotiated, with an increasingly accepted "iron ore" spot price emerging (RBA, 2012).[163] Iron ore contracts have now evolved further to the widespread use of price indices, discussed further below.

Iron ore trading is increasingly done using electronic trading platforms, which are membership-based and focused on physical trading. For example, the GlobalORE platform and the China Beijing International Mining Exchange (CBMX) platform are increasingly used in transactions[164] by major iron ore suppliers and purchasers for standardised iron ore products involving physical product delivery, although companies advise this is still small relative to the total number of transactions involving physical delivery.

Pricing Elements in Iron Ore Product Transactions

Iron ore prices are determined fundamentally by prevailing market conditions (and expected future conditions) in both iron ore product supply and the current and expected demand from the global steelmaking industry. For particular iron ore products, prices are determined primarily by the amount of iron ("fe") in the product.

Other characteristics that affect the final agreed price also include:

- the physical form of product being sold (for example, fines, lumps and pellets) and its suitability as a steelmaking input;

[162] Australia and Brazil comprise around 78 percent of China's iron ore imports.

[163] This change has been concurrent with an increasing use of centralised marketing entities to manage functions such as customer relationships, contract negotiations, shipping and logistics, and also to manage some financial risks.

[164] GlobalORE is also underpinned by a standardised set of contract terms the Standard Iron Ore Trading Agreement (SIOTA)

- the impurities present in the product; and
- delivery and payment terms.

In addition, other factors such as the duration of the agreement and the relative negotiating skills of the parties affect final agreed prices, albeit at the margin.[165] Market conditions can vary across regions and change over time – even seasonally – but the underlying utility of the iron ore products remains connected to their use as a steelmaking input.

Iron Ore Price Benchmarks

As iron ore contracts have evolved towards shorter durations and greater price transparency, price indices have emerged that are increasingly used to set prices for iron ore products. This is an evolution from contracts that agreed fixed prices for the duration of the contract (The Steel Index, 2013).

In particular, iron ore products are often based around the price of iron ore with 62 percent iron per dry metric tonne, although contracts may be specified using different price metrics (see Box). Several pricing indices have been developed to track the price of 62 percent iron products, including:

- IODEX (published by Platts);
- Mysteel (published by Mysteel.com);
- Metal Bulletin (published by Metal Bulletin Ltd);
- TSI (published by The Steel Index);
- Argus Steel Feedstocks (ICM, published by Argus Media ltd); and
- China Iron Ore Price Index (CIOPI, published by the China Iron and Steel Association).

These benchmark specifications are also used by many market participants to establish the price of other iron ore grades.

Contract terms

Contract terms will usually refer to an index price which most closely resembles the product under negotiation. This index price is then adjusted to account for any physical differences between the benchmark and the actual product.[166] For example, for an iron ore product around the 62 percent iron grade, the price of iron ore products with iron content between 60 and 63.5 percent is adjusted proportionately, based on the actual iron content (percentage) – so a

[165] For example, an iron ore transaction may cover a package of products such as lumps and fines with a volume discount offered.

[166] According to Metal Bulletin Research, in 2011-12, TSI was dominant, with around 70 percent of pricing referencing this index, followed by MBIO and IODEX at around 12 percent each. TSI is now owned by Platts (McGraw Hill).

shipment of iron ore fines with iron content of 61 percent would be adjusted (discounted) proportionately to the benchmark 62 percent price.[167] This proportional adjustment however only applies to iron ore products that have iron content within this range.[168]

In addition to this 62 percent grade, there are also pricing mechanisms for higher-grade iron ore (iron content of 65 percent) and lower-grade ore (58 percent), reflecting the different sub-markets for iron ore products. For higher-grades, prices are naturally higher, reflecting both the higher iron content as well as reduced levels of moisture and impurities. Correspondingly, lower-grades have lower prices and typically allow for greater impurities and moisture (Platts, 2015).

Each market segment may experience unique price changes - particularly over short time horizons - as each product may not be readily substitutable for others, because of the time required to reconfigure a beneficiation process or construct new equipment. Over longer time horizons however, iron ore product prices generally move in a correlated way. As a consequence, revenue authorities need to be careful to ensure they are examining the specific market when looking for pricing information to verify a particular transaction.

Box 6: Published Prices and Contract Prices

In the financial press, the iron ore price is frequently quoted as referring to a dry tonne of iron ore fines containing 62 percent iron ("fe") delivered by sea to Qingdao port in northern China.

However contracts are frequently concluded using different price metrics, such as US cents per metric tonne unit (mtu) of ferrous content. Concentrates for example are frequently priced on this basis. This means conversions may be required to compare such contracts with published "iron ore" prices.

Take as an example, a contract for 50,000 tonnes of concentrate with 64 percent iron, priced at 70.31 c/mtu also going to Qingdao on the same delivery terms.

After converting the price to USD, it is adjusted by the Fe content: 0.7031*64 = USD 45/tonne (since in this case there are 64 units of iron in each 100 units of the concentrate). Depending on how it is expressed in the contract, this may be the price per tonne including moisture ("wet" tonne). To compare against the published dry metric tonne price, the price needs to be adjusted to remove the weight of moisture. Continuing with the example, if the shipment had 8 percent moisture, the price is adjusted as: USD 45*0.92 = USD 41.4 per dry tonne.[169]

For the purposes of freight, wet tonnes are the relevant metric since this is the weight that must be physically transported (ArcelorMittal, 2016).

[167] That is, the 62 percent price would be discounted by multiplying it by 61/62, or 0.983.
[168] Platts observes that below 60 percent iron and above 63.5 percent, adjustments are not linear and therefore more variable.
[169] Source: Adapted from Garbracht (2010).

Adjustments Based on Physical Form

Once the level of iron in the transacted product has been established, prices can be adjusted depending on the physical form of product – both positively and negatively – which may fluctuate over time in accordance with market conditions. For example, products in lump or pellet form attract price premiums relative to fines because they are suitable for immediate use in furnaces, but this premium for shipments to China may increase during the year if cold weather in China restricts alternative local supplies of fines (Rio Tinto, 2015).[170]

Commonly applied adjustments are:

- For fines: a penalty adjustment may be applied where pieces are very small (sometimes referred to as "superfines") reflecting additional processing that may be required;[171]
- for lumps: unusually large lumps may attract a smaller premium if they exceed a fixed percentage of the shipment, reflecting additional processing that may be required; and[172]
- for pellets: premiums above fines may be paid depending on the quality of the pellets. In particular, pellets made for use in direct reduction steelmaking processes usually attract a greater premium than pellets made for blast furnaces.

Price adjustments based on size are typically negotiated between the parties depending on the transaction, but some pricing data on lump and pellet premiums is published (see Annex on data sources).

Penalties and Deductions – Impurities

The level of impurities in an iron ore product directly affects negotiated prices. Higher levels of certain impurities will commonly incur penalties relative to standardised grades, because of the unwanted effects they have on the properties of iron (and therefore steel - outlined in Additional Information). The most important impurities affecting prices for iron ore products are silica, alumina, phosphorous, sulphur, and "loss on ignition" impurities, which refers predominantly to moisture content.

Contracts would usually specify limits on each of these impurities, with actual adjustments made on the basis of testing (assay) results. In addition, alkalis such as lithium, sodium and potassium may affect prices if they are above trace amounts, but this is less common.

- For alumina and silica, some market data is available on adjustments for each additional percentage point of impurity within a certain range. In addition, low-alumina iron ore

[170] That is, there may be two parts to the premium calculation: iron differentials relative to standard grade fines, and then the premium associated with the pellet form.

[171] Concentrates typically trade at a premium to fines, but this is largely because they have higher iron percentages and lower impurities, not because of physical form.

[172] But this should be unusual given the crushing and screening that usually occurs before sale.

products (alumina below 4 percent) can have their own index price with a higher price than standard grades.

- Moisture levels do not have a significant effect on prices since iron ore products such as fines and lumps are priced per dry metric tonne. Pellets would be very unlikely to attract moisture penalties, as the induration process usually means they have no more than 2 percent moisture.

- For other impurities, pricing adjustment information is difficult to find and terms would be negotiated bilaterally.

Several factors limit the extent of impurities in iron ore products. In particular, mines usually aim to produce products that adhere to commonly traded impurity levels to ensure products are able to be offered into markets with more buyers and sellers.[173] In addition, certain impurities will be limited by maritime transportation rules. For example, maritime safety regulations limit moisture content of iron ore products (IMO, 2009). Where products materially exceed impurities commonly seen in markets, companies may accept harsher penalties if they choose to sell, but this provides strong incentives to blend the ore with other grades if the mine is able to, or at least invest in equipment to enable further beneficiation.

Other Factors Affecting Prices

Adjustments based on physical location and delivery date

As noted above, the size of demand for iron ore from Chinese steel mills means a significant amount of pricing information focuses on Chinese ports where products are imported.

Pricing publications commonly publish prices for products located at Chinese ports, on CFR trade terms. As a result, revenue authorities commonly need to adjust prices to account for differences in delivery terms. In particular, this is often required for freight charges, to establish the price that would be paid at a different geographical location. To make this adjustment, 'netbacks' are often used by contracting parties[174] and revenue authorities (see related Toolkit on comparability for a discussion of netback pricing).

The prices obtained in iron ore transactions are also affected by the expected duration of shipment and delivery date. In markets where there is an expectation that iron ore prices will fall[175], sellers may be able to obtain a premium relative to a pricing index if they are able to deliver more quickly than what other suppliers might commonly provide. Conversely, for product suppliers offering longer delivery times relative to those commonly available, they may be penalised by adding a discount to the index price.

[173] This has led to the development of iron ore product "brands" that aim to offer a product with standardised features including iron present, particle size, impurities and moisture.
[174] Contracts negotiated under the GlobalORE trading platform use this approach, for example.
[175] As indicated by the futures curve sloping downwards, loosely defined as a "backwardation".

Contract duration (spot and term contracts)

Iron ore product pricing is affected by the nature of the relationship between the parties, particularly whether the transaction will be once-only or negotiated as part of a longer-term arrangement (a 'term contract'/'offtake agreement').

In the latter, the product seller may offer a lower price or make adjustments to other terms as an inducement to either supplying a larger product volume or otherwise creating a stable longer-term supply arrangement (see Annex 1 for discussion of term contracts).

According to market observers, iron ore fines are more likely to be traded on spot terms, particularly with Chinese purchasers (Platts, 2015), while lumps and pellets are more likely to be sold under contracts of a fixed duration such as monthly, quarterly or yearly (Metal Bulletin Research, 2015). As noted earlier, term contracts usually reference iron ore price indices, rather than at a fixed price.

Additional Information

Iron Ore – Key impurities

Key impurities in iron ore that must be brought within commonly accepted limits are:

- Silica - increases the brittleness of iron. If silica is left in the iron ore, during iron smelting it can be alloyed into the iron. It is usually relatively easy to remove because of the density difference between silica-rich minerals and iron-rich minerals (Reed, 2013).
- Phosphorous - also makes iron more brittle, and only very low tolerances are accepted (Reed, 2013). It also, however, increases the hardness, strength and fluidity of steel.
- Sulphur - also makes iron more brittle, but also prone to cracking and failure (Reed, 2013).
- Alumina - makes blast furnace and sinter plant operations more difficult and expensive. Forces those operations to operate at higher temperatures to prevent excessive slag formation (Lu, 2007).

Steelmaking processes

Iron ore products are used first to make iron, with the resulting iron products produced then used in steelmaking. The steelmaking process ("route") used and steel products to be produced affect which iron ore products are needed and their quantities. The two main routes for steelmaking are the basic oxygen furnace route and the electric arc furnace route.

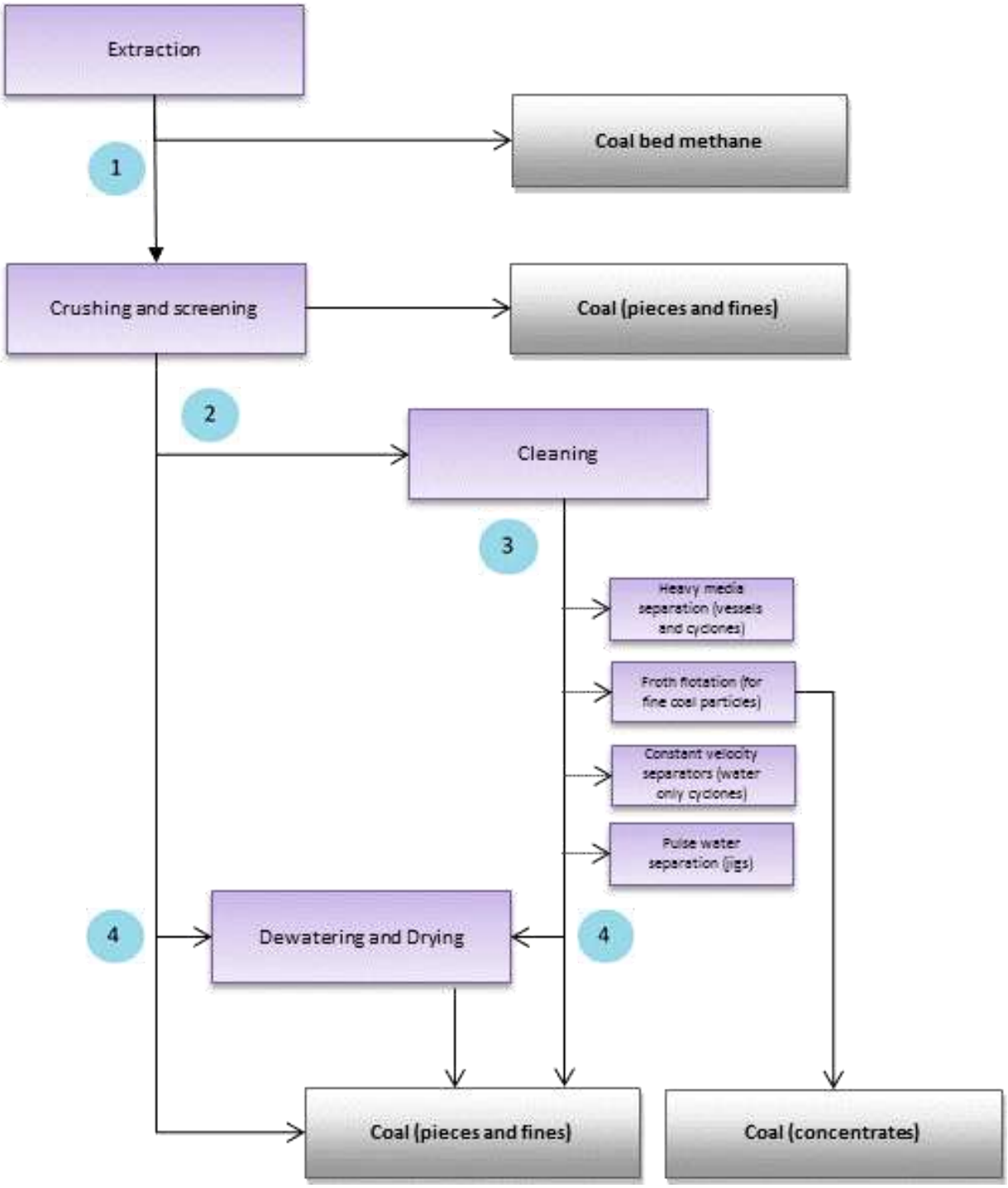
Basic oxygen furnace: a combination of iron ore, coke, coal and scrap are used in a blast furnace and melted to form molten iron. Pellets or iron ore lumps and are generally included in the blast furnace burden with iron ore fines to allow greater circulation of heated gas between them in the furnace and reaction with the ore (compared to a burden with higher proportion of fines). The liquid iron, usually around 92 percent iron, is then transferred to the basic oxygen furnace of the steel plant as "hot metal", or cooled and transferred for steelmaking as iron ingots ("pig iron"). These ingots can be sold as feedstock to other producers (Metal Bulletin Research, 2015).

Electric arc furnace: Primary inputs are scrap iron and steel, but these are supplemented by "metallics" products derived from iron ore such as iron nuggets, direct reduced iron, hot briquetted iron and pig iron.

- Iron nuggets are balls typically around 96-98 percent iron, made using iron ore pellets.
- Direct reduced iron (DRI) is a pellet or briquette made from iron ore fines or lumps.
- Hot briquetted iron is a premium form of DRI with greater density (allowing easier transportation) and lower impurities.
- Hot metal/pig iron is also used (Metal Bulletin Research, 2015).

Case Study: Thermal Coal

Coal Mining and Key Coal Products



Note: Coal bed methane (CBM) may also be the primary focus of resource extraction, rather than coal mining. CBM is naturally produced as organic material becomes coal over time. The gas is stored on the many surfaces of the coal and held in place by water pressure (Lennon, n.d.). The mine may also recover coal bed methane from the seams of the coal bed, bringing it to the surface by pumping water through the coal bed. Pricing of CBM is outside the scope of this study.

Thermal Coal Mining

The coal is severed from the surrounding land using mechanical digging processes. These processes include the use of dragline excavators at open pit mines to dig up the coal, or "bord and pillar" processes at underground mines, which use sections of the coal bed as pillars to hold up the roof of the mine as excavation occurs (Shaw, 2016).

The coal is then moved to an initial stockpile (the "run of mine") before beneficiation processes begin to transform the coal to a saleable product.

1. **Crushing and Screening**: The coal is transported to a series of crushers in a circuit, to reduce the pieces to a smaller, more uniform size. Screens are used to remove pieces that remain larger than the target size (e.g. 50 millimetres) and these pieces are sent back for further crushing.

2. Once the pieces are at their target size, they may be transported from the mine for delivery to customers (or traders) if impurities and quality are within acceptable limits. Alternatively, further cleaning processes may be required to remove surrounding waste material and to reduce the presence of impurities (particularly ash, sulphur and nitrogen).

3. **Cleaning:** Coal particles of different sizes may be separated and sent for different washing processes. Numerous processes are used to clean the coal, exploiting differences in the density of the coal relative to surrounding rock (the coal is lighter, IEA, 2014). For example, the coal may be fed into barrels and mixed with fluid causing the coal to float while heavier material sinks and is removed (OTC Journal, 2011).

   Very fine particles may be sent through a **flotation process**, in which slurry containing the fine coal particles is mixed with air bubbles, with the coal attaching to the surface of the bubbles and floating to the top of the tank as a froth, where they are removed and dried to form a concentrate (Huynh, n.d.).

   Cleaning may also include removing sulphur, especially sulphur dioxide. This may require **chemical processes** where the sulphur is chemically connected to the carbon.

4. **Drying/Dewatering:** Coal often requires drying to prepare it for sea transportation. Drying reduces transportation costs and improves the efficiency of coal in power generation.

   Dewatering processes depend on the type of water being removed (inherent, surface or free water held in the gaps between coal particles) and the type of coal (Speight, 2013). Surface water is often removed using screens which drain the water (particularly higher-rank coals) while finer pieces may require centrifuges or cyclones. Kilns then **dry** the coal.

Thermal Coal Usage and Markets

Thermal, or steam coal[176] is an energy source consisting primarily of carbon. There is a range of coal with varying energy potential, grouped into four grades or "ranks", depending on its carbon content and energy available on combustion. Higher rank coals have more energy.[177] The ranks of coal, from lowest energy potential to highest, are:

- lignite (also known as brown coal);
- sub-bituminous coal;
- bituminous coal (also known as black coal); and
- anthracite coal.

Utilities use the majority of thermal coal to generate electricity and commercial heat - around two thirds of all thermal coal is used this way.[178] Thermal coal is also used in manufacturing where industrial plants have their own power generation facilities or need for steam (such as in paper mills), as well as for concrete and transportation.[179]

Coal fired power plants vary in size and design, but put simply, utilities predominantly burn the coal.[180] This involves pulverising the coal and blowing it into a boiler where it burns at high temperatures, producing steam.[181] This steam then passes through a turbine to generate electricity.

Thermal Coal Markets and Trading

Economic Context

Thermal coal remains a major energy source, second only behind oil in primary energy consumption (coal represented around 30 percent of energy consumption in 2014).

Coal markets are competitive internationally, with arbitrage occurring geographically and also by blending coal grades to meet the particular requirements of the customer. But like other minerals, thermal coal markets have their own unique features and economic context. In particular, coal markets are influenced by external policy factors beyond the international supply and demand of the coal products themselves. For example:

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176 This study is on thermal coal. It excludes metallurgical or coking coal, a type of coal used to produce coke (a key input into iron and steelmaking), as well as coal bed methane, peat and oil shale/oil sands.

177 More formally, coal is ranked by the amount of alteration it has undergone from its organic material stage. Higher rank coals are those which have undergone the greatest degree of transformation (ABARE, 1997).

178 OECD countries use more than this and non-OECD countries less

179 There are also smaller coal-to-liquid products in South Africa and China.

180 A small percentage – less than 1 percent of world capacity – uses gasification processes, in which coal is converted to gas to produce a synthesis gas of hydrogen and carbon monoxide for use as fuel.

181 Alternatively the coal can be burnt in a fluidised bed to create steam.

- The energy security policies and environmental policies (particularly policies to limit carbon emissions) of major importers and exporters influence the structure and evolution of coal markets.

- Tighter environmental regulation in China has changed the profile of coal imports to China away from high-impurity coals.

- The Indian Government has recently relinquished its role as the sole trader of coal (via Coal India Ltd) and allowing sub-national governments and private actors to mine and sell directly to end-users (IEA, 2016).

Coal Trade

In 2014, the total trade of thermal coal was 1.05 billion tonnes, of which around 945 million was traded by sea (IEA, 2015). Coal trade is therefore is a large international market, but this international trade only represented around 17 percent of total coal production (the remainder was produced and consumed domestically).

The Pacific Basin dominates the international trade of coal, since it is where the largest importers and exporters are located, with the Atlantic Basin being the other main international market.[182]

On the **export side**, the largest exporters by total tonnage in 2014 were Indonesia (estimated 421 million tonnes, mt), followed by Australia (196 mt), Russian Federation (127 mt), Colombia (85 mt) and South Africa (74 mt). On the **import side**, Asian buyers form the majority of coal importers by weight. China is the largest thermal coal importer, importing an estimated 219 mt in 2014 - representing over 20 percent of coal imports globally. This is followed by India (175 mt), Japan (137 mt), Republic of Korea (96 mt) and Chinese Taipei (58 mt). Countries in Europe and the Mediterranean are also significant purchasers, particularly Germany, United Kingdom, and Turkey.

Price developments in China are highly influential in international price formation, explained by that country's large share of total coal consumption.[183] The IEA observes that "… coastal South China is still the clearing market, i.e. the main place where price is formed, in the Pacific Basin, especially for low calorific coal. Imports mainly from Indonesia and Australia compete with domestic seaborne trade, and are sold at the prevailing spot price for the day when the deal was done or even at the prevailing spot price for the day that coal arrives at the port." (IEA, 2015)

Recently, several factors including falls in sea freight rates have worked to increase the integration between the Pacific and Atlantic basins, strengthening the ability of traders to arbitrage between the two markets. This means prices in the two main markets move in line with each other over time, with short-term differentials balanced by changes in trade flows.

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[182] Russian Federation and South Africa are able to supply both, depending on price conditions.

[183] One unique feature of coal trading is that domestic coal sales are usually not linked to international price indices. Further information on domestic coal trading, particularly in China, is available from the IEA.

Pricing and Contracts

Customer Requirements

Understanding the economic context of the ultimate coal user is essential to understanding which coal they buy and their supply requirements (Shaw, 2016). For example, where there is a continuous need for power such as electricity generators that contribute to generating a region's base load electricity, or in smelting or continuous manufacturing operations, this would typically require a steady supply of coal and put a premium on ensuring consistent supply (some mines are adjacent to the utility, minimising transport costs). Alternatively, the user may have variable energy needs – for example, a power plant may be switched on only at certain times of day, affording the customer greater flexibility in scheduling purchases and using different suppliers.

Energy Content and Quality

The primary price determinant for coal is its energy content (amount of heat), measured per unit mass of coal on combustion. This is indicated by its calorific value, which is the capacity of the coal to generate heat.[184] Energy content is measured in thousands of calories (kilocalories, or kcal) per kilogram of coal or the imperial equivalent, British thermal units per pound. Energy content ranges from approximately 3,400 kcal/kg to 6,700 kcal/kg.

End-users buy coals, first and foremost, based on the quality of the coal. This is to ensure the coal product is compatible with their boiler(s). There are sub-markets for coal products based primarily on the type of coal and its energy content, noting that lower-rank coals are not typically shipped long distances given the higher transport costs per unit of energy.

Parties to a coal transaction will agree either a fixed price, or refer to a coal price index that most closely represents the type of coal being traded and its export location. Fixed price contracts typically have shorter durations, ranging from spot sales to an agreed tonnage to be delivered over the course of one year.

For coal shipments with a calorific value close to the prescribed reference specification (such as small variations in different shipments), an arithmetic adjustment would be made to the price for the proportion of energy in the shipment relative to the price for the agreed reference grade. For example: if a contract refers to a price with energy content of 6,000 kcal/kg, a coal shipment of 5,900 kcal/kg might be discounted by 1.6 percent.[185]

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[184] There are two ways to express calorific value: gross calorific value or net calorific value. The GCV is the amount of heat liberated during a test in a laboratory, where the coal is combusted under standardised conditions at constant volume so that all of the water remains in liquid form. NCV is the maximum achievable heat in a boiler, because some energy is lost converting the water in the coal to vapour. (source: Thomas) NCV is therefore lower than GCV – it is the more "real world" calorific value. See Box for information on converting between GCV and NCV.

[185] That is, the price would become (5900/6000)*(reference price). Standardised coal trading contracts such as the Coal Trading Association 2010 Master Coal Purchase and Sale Agreement also prescribe is approach, specified in BTU per pound (see Coal Trading Association in the list of References included in Annex 1 to this Supplementary report)

Price Indices

Price Indices exist for several coal types originating from major supply ports including coals from South Africa, Australia, Indonesia, Colombia and Russian Federation. These indexes have shorthand names commonly used by traders, referring to the particular publications that monitor and report on prices for those trades.

- "API2" is the most commonly used reference price in the world. It is the benchmark price for imported coal to North West Europe (6000 kcal/kg NAR). The volume of API2-based derivatives is more than 2.5 billion tonnes.
- Other popular indices are API4 and API6. API4 is the benchmark price for coal exported from Richards Bay in South Africa (6000 kcal/g NAR). API6 is the benchmark price for coal exported from Newcastle in New South Wales, Australia (6000 kcal/kg NAR).
- For the Americas, the Central Appalachian Coal Price Benchmark (CAPP) spot prices are the most widely referenced for thermal coal in the eastern USA. CAPP spot coal prices are commonly used to price both physical and financial transactions for short-term and long-term contracts. CAPP spot prices reflect the value of the coal at the CAPP Delivery Zone location. These prices do not reflect delivery costs from the delivery zone to another location, emission abatement costs nor any other handling charges (Tradition, 2013).

Given the range of qualities of coal internationally traded, there are different indices for different qualities. For example, ICI1-ICI5 are five indices published by Argus for coal exported from Indonesia, with calorific values ranging from 3000 to 6200 kcal/kg NAR.

Moisture

Moisture content simply refers to the water that is in the coal. As noted above, coal miners will remove as much water as possible, since it adds to transport costs and, if high enough, can pose a risk to the stability of the ship.[186]

Moisture is measured as a percentage of the "air dried" coal (that is, the moisture in the coal after achieving equilibrium with the atmosphere around it). Agreements will typically specify a moisture percentage with a price penalty for small amounts above the agreed level and a maximum above which the shipment can be rejected. For example, total moisture may be specified at 13 percent, with a USD 0.20/tonne for each 0.1 percent above 13 percent up to a rejection level of 14 percent.

[186] In addition, low grade coals with high humidity content can self-heat, risking carbon emissions, spontaneous combustion or damage to equipment. For this reason they are not stored at power plants for long and need to be delivered efficiently (Osborne, 2013).

Impurities

Impurities in coal can damage equipment and/or must be mitigated when the coal is burnt according to environmental regulation, increasing costs. Impurities that routinely result in price penalties (when above commonly observed market levels) are ash and sulphur.

- **Ash Content:** Ash remains after the complete combustion of all organic matter and the oxidation of the mineral matter present in the coal – it is therefore the incombustible material present in the coal. It is measured as a percentage of the air dried coal sample. Since ash does not contribute to the calorific value of the coal, its presence increases costs. In particular, a higher ash content increases transport and handling costs per unit of energy contained in the coal, and also waste management costs because the ash requires disposal after combustion (ABARE, 1997). Coal with ash content exceeding standard contract specifications would therefore face a price penalty.

- **Sulphur Content:** Sulphur, broadly defined,[187] is a pollutant predominantly emitted as sulphur dioxide gas during combustion (unless utilities install mitigation measures). It can also damage plant equipment by for example, corroding metal surfaces. As a result, power plants usually prefer coals with naturally lower levels of sulphur, or purchase coals within maximum levels, either on their own or after blending.[188] Coal with sulphur above standard contract specifications would therefore expect to receive a price penalty.

Outside electricity generation, coal buyers using the coal as energy require coals meeting very precise specifications. In cement production however, tolerance to ash may be higher since it can be incorporated into the clinker, meaning that industry may be able to work with a wider range of qualities (IEA, 2015).

Other factors

- **Volatile matter:** This is the proportion of the air-dried coal released as gas or vapour during a standardised heating test (Skompska 1993). This proportion tends to decrease as the rank of a coal increases (ABARE, 1997). Higher volatile matter content indicates coal that is easier to ignite and which will burn with a large, steady flame.[189] However, if volatile content is too high (exceeding 30 per cent of the air dried coal), it increases the potential risk of spontaneous combustion (ABARE, 1997).

- **Grindability:** Coals with high grindability are relatively soft and easy to prepare for the boiler. Grindability varies with coal rank: it is generally relatively low for anthracite coal (very hard pieces), improving for bituminous coals (most grindable), before falling again for sub-bituminous and lignite coals (Thomas, 2002). The Hardgrove Grindability Index

[187] Sulphur can occur as elementary sulphur, as sulphates, sulphides or in organic combination in the coal (Speight 2013, in coal handbook).

[188] Alternatively, plants may purchase higher-sulphur coals and remove the sulphur either during or after combustion (but at their cost). Utilities in Japan, for example, routinely have sulphur-removing equipment.

[189] For this reason, volatile matter estimates are often used to calculate combustibility indexes, which indicate the reactivity of the coal.

(HGI) measures grindability. Price adjustments are not usually made for variations in HGI - rather, contracts usually specify a typical HGI value for each shipment, and a (lower) HGI value that would entitle the buyer to reject the shipment.

- **coal piece size distribution:** the size of coal pieces does not usually affect prices, because power plants pulverise the coal down to fine powder immediately before it is used. It is more likely a shipment would be rejected if the piece size distribution was too large. But contracts will typically specify the particle characteristics of the shipment, with maximum percentages of large pieces (above 50 millimetres) and very small pieces (less than 6 millimetres).

Contract Periods

Spot transactions dominate the international trade in thermal coal. But there is a range of customer practices when purchasing thermal coal. The coal contract may specify a fixed price per tonne, or use an agreed reference price. Usually a fixed-price contract will be shorter, and not exceed 12 months. Agreements may be for a specified quantity of coal, delivered as either one shipment, or in multiple shipments within a specified period.

Additional Information: Contract Units of Measurement and Common Terms

Tonnes and Tons: The quantity of coal to be priced will be clearly specified in contracts, either in metric tonnes (1,000 kilograms) or, in transactions involving USA firms, short tons (2000 pounds or equivalent to around 0.907 metric tonnes).

British thermal units (BTUs): approximately 1055 joules of energy (1 BTU/lb = 0.556 Kcal/kg)**.**

Dry Basis: Analytical concept where the coal is calculated to have zero moisture.

Dry Ash-Free Basis: Analytical data calculated to a condition of zero moisture and ash (i.e. first approximation to 'pure coal') to allow comparison of different coals. This is strictly a hypothetical basis because the ash is only generated on the incineration of the coal, but is used frequently because of convenience. Dry mineral matter free basis is more precise, but less easy to obtain.

Gross As Received (GAR) and Net as Received (NAR): contracts may use either gross or net as received as their standard valuation term. As noted above, the difference between GAR and NAR reflects the latent heat190 of the oxygen and hydrogen which lowers the effective calorific value in the boiler (Knowledge Infrastructure Systems, n.d.). To make an approximate conversion from GAR to NAR: NAR = GAR minus 260 kcal/kg (Thomas, 2002).

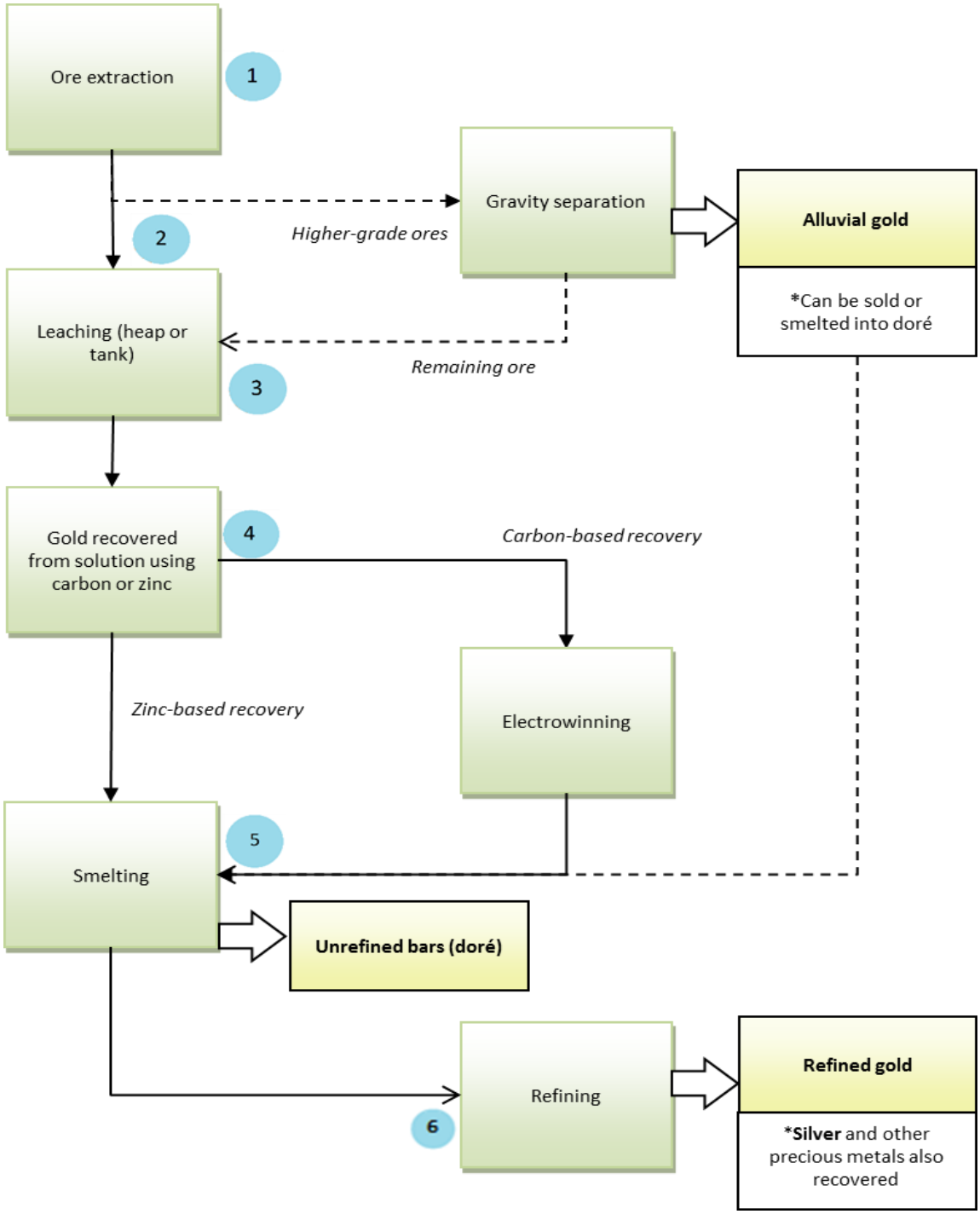
Fixed carbon content: measured as a percentage of the air dried coal sample, is approximated by taking the difference between 100 per cent and the sum of the estimated inherent moisture content, volatile matter content and ash content, also measured on an air dried sample basis.

"Long Term" Contract: For most countries, this refers to contracts of 1 year duration or less. However in the USA, this refers to contracts of 3 years or less.

[190] Latent heat is the amount of energy absorbed or released by a substance during its change in physical state (such as from a solid to a liquid, or liquid to gas), measured in units of energy per "mole or unit of mass undergoing a change of state" (source: https://global.britannica.com/science/latent-heat)

Case Study: Gold

Mining Production and Key Products



Gold Mining

Gold is usually in microscopic particles in the ore, and only small amounts of gold are typically extracted from each tonne of ore. Large mines may extract ore with an average grade as low as 1 gram per tonne.

Gold Production

1 The process of ore extraction depends on the grade and geometry of the ore body, particularly its proximity to the surface. Drilling and blasting are generally used to mine hard rock deposits, but significant amount of gold are also won from easily excavated alluvial deposits.

The ore is initially moved by trucks to a mill to be crushed and ground into increasingly smaller pieces. Primary crushers are used to break down the largest rocks to a size that can be more manageably handled. Conveyor belts move the broken ore to subsequent crushing machines, with screens used to sieve out pieces that are still too large.

2 Different "blocks" of the ore may be categorised as either "low grade" (up to 5-6 grams of gold per tonne) or "high grade" (7 grams or more), and may be sent for different recovery processes.

Gravity separation: Where the gold is in larger particles, various processes may be used that exploit the physical differences in the gold relative to the surrounding waste rock to separate them. Once the larger gold pieces have been recovered, the remaining ore is transferred back to recover any gold that is still present.

3 ***Leaching of the ore:*** Cyanide leaching is currently the primary method for gold recovery internationally at medium and large-scale mines. There are several processes used to recover gold dissolved in cyanide that follow a similar path, including the commonly used heap leaching and tank leaching processes.

Low-grade ore is first piled in heaps and cyanide solution is sprayed over the top of the pile. As the liquid passes through the ore, it gradually dissolves the gold into the solution, pooling in ponds over a period of weeks. This approach is relatively low cost and consequently used for lower-grade ores, and the process is repeated over several months to maximise the amount of gold recovered.

For higher-grade ores, leaching is usually done in specialised tanks, which - together with other facilities that must be constructed - makes this process more costly, since these facilities must also provide for carbon-based or zinc-based gold recovery.

4 ***Recovering the gold: Carbon or Zinc-based approaches***

Carbon-based recovery: Two common carbon-based approaches are the "carbon in pulp" and "carbon in leach" processes which use carbon to bond with the gold, facilitating easier separation. In both processes the ground ore is mixed with water to form a pulp and prepared for an adsorption circuit. This circuit typically involves a

series of sequential tanks where the carbon and the pulp mix, passing in opposite directions.

This process gradually transfers the gold onto the surface of the carbon. The main difference between the processes is the carbon can be applied sequentially after the cyanide leaching (this is CIL), or concurrently with the cyanide (CIP). The CIP is used widely, whilst the CIL process is primarily used to treat ores containing organic matter and other carbon-based components.

Once gold has been adsorbed onto the pores of the carbon, a further cyanide solution is used to strip it back from the carbon and dissolve it again into the solution, with the now-"pregnant" (gold-rich) solution ready for electrolysis. Electrowinning is used to recover the gold from this liquid, "starter sheets" of stainless steel are placed into the solution and an electrical current is passed through the liquid. This causes the precious metals to bond to the starter sheets, gradually forming gold cathodes. The gold cathodes are smelted to separate the gold from the stainless steel.

Zinc-based recovery: An alternative to the carbon-based recovery processes is the "Merrill-Crowe" process. The solution from the leaching tanks is initially clarified using filters and oxygen is removed from the solution in a vacuum tower, so that the zinc will be more effective in attracting the precious metals.

Zinc dust is then mixed with the solution, causing the precious metals to precipitate. These solids are then caught using filters, and excess moisture removed by blowing air over the solids (often referred to as "cementation cake"). It may be necessary at this point to remove any mercury that may be present from the cake. This is done in a retort oven, which heats the solids causing mercury to vaporise and be removed. The solid is then ready for smelting.

Smelting: From the Merrill-Crowe process, the dry precipitate is mixed with fluxes and melted in a furnace. The process melts the metals and flux materials, which naturally separate (the gold sinks). The flux draws out the zinc and impurities and the molten (liquefied) material is eventually poured out - because the gold has sunk, the flux pours out first, and then the gold is poured into a mould.

From the electrowinning process, the gold is separated from the stainless steel cathodes, either through a rinsing process or by smelting. In the rinsing process, the rinsed-off sludge is pressed and dried, mixed with fluxes and put into the furnace. Impurities are drawn out and the gold eventually poured into moulds to make bars or ingots (as above). In the smelting process, the cathodes are heated to approximately 1,100 degrees Celsius, melting the gold but not the stainless steel and allowing separation.

The smelting process may also incorporate gold obtained from other processes, such as gravity separation.

The bars are cooled. At this stage they are still an amalgam of gold and potentially other metals such silver. These unrefined bars are known as doré. The bars are

typically around 80-85 percent gold, with the balance made up of silver, copper, other base and platinum group metals, and impurities. In some countries the doré contains more silver than gold.

6 ***Refining:*** Mines send their doré bars to a refinery to separate the gold, silver and other metals and remove remaining impurities. There are several different refining processes used depending on the composition of the product to be refined and scale of operations.

Using the "Miller" process, the gold is melted and gaseous chlorine is blown through the molten metal, drawing out impurities, which rise to the surface. This approach will typically produce gold that is 99.5 percent pure. If this purity is sufficient, the molten metal is usually cast into 400 ounce bars, ready for wholesale trade.

For higher purities (99.95 percent), a subsequent electrochemical process is used (the "Wohlwill process" is common), where the 99.5 percent pure gold is cast into anodes and placed into a solution of hydrochloric acid and gold chloride to dissolve it. Cathodes are placed into the liquid and an electrical current passed through the fluid, causing the gold to attach to the cathodes.

Those cathodes are then re-melted and made into small granules by pouring the molten metal through fine screens and then quickly cooled. This allows very precise measurement of gold weight. The (weighed) grains of gold are then poured into moulds and melted, or vice versa. The moulds are standardised sizes ranging from 1 kilogram bars to half-ounce ingots.

Pricing Practices

Intermediate Gold Products[191]

Based on the methods of transformation used by these mines, doré bars and concentrates are the key intermediate gold products that are traded at arm's length.[192] Substantive international trading in gold ore is rare and where it occurs, is confined regionally since much of the material is waste that makes it uneconomic to transport long distances.

Most gold mines recover, process and smelt gold, silver and other metals into doré, before involving arm's length parties in the final refining stages. Many mines do not have the capacity to refine the doré themselves, and involving external refiners simplifies gold sales.[193] For developing countries, the gold is usually exported as doré and refined abroad.

At arm's length, the main transaction for miners is to pay for the service of refining the doré to 99.5 percent gold (known as 'toll refining'). The gold to be refined is deposited into the customer's account with the refinery, and following refining, the customer would then choose to sell the gold to the refinery with reference to the prevailing spot price or to transfer the gold to the customer's gold account internationally (see Additional Information on gold swap arrangements).[194]

The refinery will first analyse (assay) the contents of the bar by melting it to ensure there are no pockets of inconsistent purity. Based on that analysis, the refinery will indicate the quantities of gold and silver present, quote a cost of refining, and indicate the price the refinery would be willing to pay for the metals. This is commonly presented in an "outturn" report (see Additional Information for an example).

Pricing and payments made for doré will depend on the physical properties of the bar and the details of the buyer and seller. The negotiated payment to the mining company are based firstly on the value of the gold and silver ("payable metals") present, reduced by "retention fees", refining charges and in some instances, other fees and taxes such as environmental charges.

Payable Metals and the Reference Price

Doré is priced based on the measured quantities of gold and silver present in each bar. Each troy ounce is priced with reference to prevailing refined gold (and silver) spot prices. Other precious metals such as platinum are usually not paid for (although they may be recovered profitably by refineries).

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[191] There are several gold mining processes used across a range of small-scale to large mines. The focus of this paper is medium to large-scale mines.

[192] The revenue losses from non-reporting or under-reporting of the sale of gold products by artisanal miners or intermediaries is outside the scope of this study.

[193] For example, the mine need not have the exact quantity of gold required for standardised international trades, because their supply can be mixed with that of other mines (Suchecki, 2015).

[194] This approach is also used for gold from alluvial sources, although with artisanal mining the gold is usually first sold to a trader.

The reference price is most often based on London Bullion Market Association (LBMA)'s twice-daily electronic auctions. The results of these auctions (AM and PM) are published as an official "LBMA Gold Price", quoted per fine troy ounce in USD, Euro and UK Pound Sterling. Market information services such as Bloomberg and Reuters then republish that information as well as real-time price developments based on information from key refined gold traders.

Refineries may use the LBMA reference price directly for the day the bar was received[195], or alternatively may slightly adjust this spot price to provide the refinery a commission (that is, the refinery would take a spread on the price they pay for unrefined gold and the price they receive for selling refined gold). This means the mine might receive close to, but not necessarily the full LBMA spot price. Some transactions may use an average of the LBMA price over an agreed time period (quotation period), but this is rare.[196]

At the margin, the negotiating skills of the parties may affect the final agreed price, meaning small to medium sized mines with relatively lower bargaining power may achieve prices below those of large miners.[197]

Pricing Adjustments and Refining Fees

Spot Price - location adjustments

For customers that elect to credit the gold into an "unallocated" gold account in London[198], the spot price may be adjusted, to approximate the cost of transporting the gold (see Annex 1 on Loco Swaps).

These adjustments reflect the demand-supply balance in both the buying and selling locations. For example, a refinery located in a market with an excess of gold supply relative to domestic demand would usually sell at a discount to gold physically located in London. For example, the Loco Perth (Australia) discount is approximately US 30-40 cents/ounce to the Loco London spot price. Alternatively, locations with an excess local demand for gold relative to what the refineries in that location supply would sell at price above the London spot price, to attract the delivery of gold.[199] When physical gold flows are stable, the adjustments are small however.

Metals lost during refining – retention fee

Payments are usually adjusted to account for losses during the refining process, sometimes known as a "retention fee". These adjustments are not published by refineries. Based on discussions with refineries however, they appear to be small where major refineries are involved –

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[195] For example, Rand Refinery in South Africa uses the London PM fix.

[196] For royalty calculations, revenue authorities may prescribe a particular quotation period for valuing the metals, such as the average LBMA gold price for the calendar month in which the doré was sold.

[197] The refinery may offer a different price, based on their judgement as to the market savvy of the customer and potential for future business.

[198] Unallocated accounts are gold accounts that operate much like bank accounts for currency. Gold amounts can be debited and credited to the account, with the balance representing the indebtedness between the two parties. They do not indicate any claim over a specific bar, in contrast to allocated accounts where specific bars are set aside.

[199] Put another way, where there is excess supply, the supplier will bear the cost of shipping the gold to other locations. Alternatively, in a location with strong demand, the purchaser will pay the shipping cost.

around 0.1 percent for gold and 1 percent for silver.[200] The adjustment varies across refineries (for some refineries, it is standardised, for others, it is customer-specific), but it is applied without reference to the actual losses incurred on a particular doré bar.[201][202]

Refining Charges (RC)

Refining charges are applied for removing impurities and separating the precious metals. Refineries may also include fees for environmental costs and for assay services, but these are small relative to the value of the metal.

Refining charges are set per gross ounce – not troy ounce – of precious metal, but are often negotiated for each individual gold supplier. Negotiated RCs are based on factors such as:

- the amount of gold to be processed and size of the customer (higher quantities attracting a lower charge);
- the expected frequency of refining (i.e. whether a "one off" transaction or part of a longer-term arrangement – the latter usually receiving a lower charge); and
- the purity of the product to be refined (doré with higher percentages of gold will usually have a lower charge per ounce relative to one with more silver, since the separation of the metals may be easier).

The individual refining charges imposed are not however publicly disclosed – they are closely guarded commercial terms. That said, at the time of writing they are estimated to be in the order of USD 1-3 per gross ounce. Given the discussion above, it would also be reasonable to presume larger mining companies, particularly operating on longer-term arrangements with the refinery, would have lower refining charges. Charges that are materially higher than these levels warrant closer review.

[200] This small adjustment is in contrast to payable gold in concentrates which are typically larger since concentrates must go through more stages of transformation, each with the potential for metal losses (discussed in the copper case study)

[201] Any difference between the adjustment and actual losses is a revenue stream for the refinery, providing an incentive to ensure the refinery is operating as efficiently as possible.

[202] One refinery advises the content of each bar will affect the retention fee applied.

Additional Information

Gold - Measurement for trading

The trading unit for gold is fine troy ounces (for silver it is simply troy ounces). A troy ounce is around 31.1 grams, as compared to the standard ounce (around 28.3 grams).

The distinction between gold and silver is that the unit of measurement for gold represents pure gold, irrespective of the purity of a particular bar. In contrast, for silver it represents one ounce of material, of which a minimum of 999 parts in every 1,000 will be silver.

"Fineness" is a measure of the proportion of gold or silver in a bullion bar, expressed in terms of the fine metal content in parts per 1,000 (bullion refers to pure gold that is in bar or ingot form). It is therefore a measure of purity. For gold, retail markets such as the jewellery industry usually express fineness in "carats", which are parts of fine gold per 24. For example, eighteen carat gold jewellery is 18 parts of pure gold per 24 - in bullion markets it would be referred to as "750 fine" (LBMA, 2015).

Wholesale gold trading

There are two key wholesale markets that determine the spot price of refined gold (and silver). These are the "over the counter" (OTC) market and futures exchanges.

The OTC "market" is an international network of transactions that occur directly between traders that are typically professional or corporate entities trading gold bars on standardised terms such as:

- a specified purity (99.5 percent or "995 fine" – explained above);
- gold content (between 350 and 430 ounces, with bars generally close to 200 ounces; and
- contract settlement in London in two business days (LBMA, 2015).

Futures markets are regulated exchanges where the price is quoted for delivery of the metal at specified future dates. The largest market is the US-based COMEX market. The next futures delivery date is sometimes used as a proxy for the spot price, although the LBMA price is the most commonly used reference price.

OTC gold transactions are conducted on bilaterally agreed terms, anchored closely around spot gold prices.

Example of refinery outturn document

MEMORANDUM OF OUTTURN

Our Ref:
Date of Lodgement: /11/2011
Date of Outturn: /11/2011 10:32
Gold Price: $ 0.00
Silver Price: $ 0.00
Shipment No.:

Deposit Number	Receipt Wt(oz)	Official Weight	Assay Report Gold(%)	Silver(%)	Fine Gold Allowed(oz)	Fine Silver Allowed(oz)
	Description: SR 4393-					
25790	624.85	620.20	77.150	20.490	478.006	125.808
	Description: SR 4395-					
25791	968.77	963.99	87.020	10.870	838.025	103.738
	Description: SR 4397-					
25792	906.04	902.94	83.200	14.870	750.495	132.924
	Total Fine Allowed				2066.526	362.470
To Metals Account:					2066.526	362.470

Buyer:
L/No:

Less Charges:	Refining	1,499.79	
	Assay	265.50	
	Environmental	81.91	
	Freight Dep No:25792	2,299.69	
	GST	0.00	-4,146.89
Amount Due To Refinery			USD 4,146.89

Source: Indonesian Stock Exchange

Gold - Location ("Loco") Swaps

Gold markets have developed a system to simplify and manage the transfer of gold internationally, reducing the quantity of gold that needs to be physically transported.

Loco swaps are a linked gold purchase and sale of the same quantity which offset one another, where the two parts of the transaction are for gold in different physical locations. For example, a loco swap might be used to transfer 100 ounces of gold from a refinery in Hong Kong ("loco Hong Kong") to London. In this case, the refinery would:

- buy the gold from the miner in Hong Kong, withdrawing 100 ounces from the miner's account in Hong Kong, and
- sell the gold back to the miner in London, depositing 100 ounces into the miner's London account.

The two transactions are done simultaneously in the same currency, at the prevailing prices for gold in each location - in this hypothetical example, assume the loco London price is $1002 per ounce, the loco Hong Kong price is $1000, a discount of $2 per ounce. The miner would then pay the refiner the location discount, in this case $200 (100 ounces at the discount of $2 per ounce).

Source: Perth Mint.

CONCLUSIONS AND POSSIBLE FURTHER WORK

As outlined in this supplementary report and the related *Toolkit for Addressing Difficulties in Accessing Comparables Data for Transfer Pricing Analyses,* applying transfer pricing rules to commodity transactions – mineral, hydrocarbons and agriculture - remains a complex task for revenue authorities in both developed and developing countries.

Many elements need to align for developing countries to have confidence that the related party transactions on mineral products reflect common market practices. In particular, transfer pricing rules must be clearly outlined and enforced effectively, drawing on industry understanding and well-developed international information exchange networks. For developing countries, getting all of these elements in alignment remains a massive undertaking.

This work on mineral pricing fills an information gap and should benefit developing countries. Several developing countries are starting to apply the methodology and case studies, forming a foundation for further research and insight. Companies have also reacted positively to the case studies, since they assist in allowing governments and companies to more quickly past discussions as to the structure and operations of domestic mining operations to the products sold and their appropriate treatment under transfer pricing rules.

But the case studies have shown that each mineral has its own unique characteristics and market structure. While there are commonalities across minerals, such as in mining practices and beneficiation methods, often it will not possible to extrapolate conclusions from one mineral to another - each needs to be examined in detail.

Continued efforts to assist countries with these challenges are critical. Taking the basic "building blocks" as outlined in the introduction (Box 2), more action could be taken across several fronts:

Practical industry knowledge

- **Additional case studies:** Feedback on the initial case studies indicated many countries appreciated the studies chosen, but needed help on other minerals or oil and gas products. Consequently, the initial case studies could be expanded productively according to developing country and DWG priorities, thereby providing countries with additional points to improve their understanding of their commodity sectors. Based on the methodology developed, the work to date could be readily expanded to other mining commodities, and then to hydrocarbon (oil and gas) and potentially even agricultural markets. Based on the clear demand for the case studies to date, the OECD is undertaking additional work to expand them. In particular, additional work into the challenges of rough diamond valuation is underway, as is an additional case study into bauxite/alumina examining the challenges when there is a high degree of vertical integration in a mineral. These will be delivered in 2017.

- **Expanded study areas:** Also based on the feedback of developing countries, the work could also be expanded into wider areas including a deeper examination of price setting in freight markets, (both land and seaborne); and onto targeted areas including costs of key mining, smelting or refining inputs, since these determine CIT and royalty deductions. Several organisations have expressed interest in pursuing this work. Further work could also be done comparing cross-country experience in setting prices for tax/royalty purposes through laws or APAs.

Wider issues

- **Implementing effective transfer pricing rules**: The implementation of transfer pricing rules in developing countries and their application remains essential. The toolkit on comparability will address some of these concerns, and other publications appear to be imminent such as a World Bank publication on the transfer pricing issues in the mining sector. Further toolkit work will also continue to include a thematic extractive industry lens wherever possible.

- **Trading hubs:** The remuneration and role of the trading and logistics entities of multinationals is consistently identified as a key area of transfer pricing dispute between taxpayers and tax authorities. Further work to examine the functions, assets and risks of these entities in the mining industry could be worthwhile. However, the forthcoming World Bank publication may address these concerns. If needed, further work may be undertaken by the Platform partners, regional bodies or via partnerships such as between the OECD and the Inter-Governmental Forum on Mining (IGF).

- **Price risk management (hedging):** Understanding the role of price risk hedging in commodity transactions is a particular area of complexity for developing countries. Further work could be undertaken to examine how companies manage their price risks – particularly where hedging is done between related parties in an MNE group - and whether there are base erosion risks from these practices.

- **Encouraging greater market price transparency for some minerals**: For those minerals with opaque markets and no international reference prices, further work could be done to examine how transparent markets have emerged for those that do; what policy settings may be effective in bringing about greater transparency in particular markets where it is needed.

- **Continued capacity building and training:** Country and regional-level assistance remains essential. This assistance continues to be necessary on the design and application of transfer pricing rules, as well as to improve sector knowledge and to access to taxpayer information through information exchange.

ANNEX 1 – SUPPLEMENTARY MINING INDUSTRY INFORMATION AND REPORT REFERENCES

Additional Mining Industry Information

Blending of mine output

There is considerable diversity in the output of different mines, both within and across countries. Miners may need to blend the output from different mines to create marketable products – that is, mineral products that meet the specifications of an established market with a larger number of buyers and sellers, or of a specific customer, particularly where there is a longer-term supply agreement in place.

In addition, mining companies may blend products to optimise prices for the total mineral assets they control – for example, a mineral concentrate product with a more standardised blend may yield better overall revenues than unblended forms that may only appeal to a smaller number of customers.

Ultimately, the blended products need to be suitable for the requirements of customers. A concentrate with abnormal specifications may not be suitable for a smelter, because it might reduce the efficiency of the smelting process (meaning the process takes more time; requires additional processes; requires more inputs such as energy or chemicals; or reduces the amount of metals that can be recovered). In addition, the material might have to meet environmental standards (for example, China has prohibited the importation of copper concentrates with arsenic levels above 0.5 percent (Platts, 2014)). The mineral product must also be safe to transport and conform to maritime guidelines (for example, copper concentrate can liquefy during transportation if moisture content is too high).

- For **copper**, blending occurs primarily at the concentrate stage, but may also occur earlier in the value chain. At the ore stage, it involves the use of specialised equipment such as stackers that distribute materials evenly across an existing stockpile until a target set of proportions is achieved (ATO, 1998). For smelters, blending can be done to effectively dilute 'dirty' concentrates (that is, concentrates with higher than accepted levels of deleterious elements) so long as the smelter is usually dealing with relatively 'clean' concentrates (Wellmer et.al, 2008).
- For **iron ore**, blending typically occurs at the mine to ensure iron ore grades conform as closely as possible to widely traded benchmark products.
- For **thermal coal**, blending can occur at the mine. Final users may also blend coal grades to ensure the coal is suitable for their boiler(s).

Shipping - Key Standardised Trade Terms ("Incoterms")

For products transported by sea, another key factor affecting final price will be the costs of transportation. Several incoterms are used depending on market conditions and the bargaining power of the parties. The most common are FOB, CFR and CIF.[203]

- **FOB**: "Free On Board" means that the seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel, and the buyer bears all costs from that moment onwards.
- **CFR**: "Cost and Freight" means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.
- **CIF**: "Cost, Insurance and Freight" means that the seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination. The seller also contracts for insurance cover against the buyer's risk of loss of or damage to the goods during the carriage. The buyer should note that under CIF the seller is required to obtain insurance only on minimum cover. Should the buyer wish to have more insurance protection, it will need either to agree as much expressly with the seller or to make its own extra insurance arrangements.

One other term that is used is "ex works", which means the parties have agreed that the supplier will make the product available at the place it was created, rather than at, for example, the port of export. This means the buyer must pay costs of transporting the product from the factory or place of manufacture, and takes all delivery risks at that point.

Shipping – Key terms

Bulk shipping – methods

- **Bulk Freight** – the ore is free/loose, not in packaging of any sort (and not in a shipping container). The product usually goes straight into storage hold of the ship.
- **Break Bulk** – the commodity is in bags, bales, drums, etc. This can make it more expensive to load/unload.

[203] Source: Incoterms text is quoted directly from International Chamber of Commerce Incoterms 2010 in accordance with ICC expectations. Full terms at ICC bookstore.

Payment terms

Several payment terms are referred to in pricing publications, which have different implications for the timing of payments. Selected terms are defined below.

- **At sight**: the purchaser must pay on receipt of an invoice from the seller.
- **Letter of credit**: indication from the purchaser's bank that it financially supports the transaction (that is, if the buyer refuses to pay, the seller has recourse to the bank for payment).
- **Cash against documents**: seller retains ownership of the product until payment is made. A mutually-agreed intermediary (such as a bank) holds proof of purchase that is provided to the purchaser once payment has been received by that intermediary.
- **Documents against acceptance (D/A):** shipping and title documents are passed to the buyer by an intermediary (such as a bank) only if the buyer accepts the accompanying bill of exchange or draft by signing it.

Documents and communications

- **Bill of Lading ("B/L")** – A key document used in the transportation of goods, outlining the contents of shipment (type and quantity) and destination of the good being carried. It is a document between the seller and the transporter/carrier.

Source: Investopedia.com

- **Notice of Readiness (NOR)** – A communication from a shipmaster that advises either the sender of receiver of the cargo that the ship has arrived at port and is ready for loading or unloading.

Source: Businessdirectory.com

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ANNEX 2 – DATA SOURCES ON TRANSACTIONS FOR EACH CASE STUDY

Please note - *The following information is from the websites of publication service providers and discussions with company representatives. It is a reference source for revenue authorities, but the PCT does not endorse the information contained in these publications.*

Data and Information Sources

Copper

ITEM	COMPANY & PRODUCT	NOTES	SOURCE
General mine information by country	**International Copper Study Group – Directory of Copper Mines and Plants** Contains information on copper product production and key producing countries. It includes information on current, planned and recently closed mines including ownership and key products produced.	From ICSG: "The subscription price for the annual service (2 issues) is €500 for subscriptions originating from institutions based in ICSG member countries* and €750 for subscriptions from non-ICSG member countries. Single copies are available for €400 per year (ICSG member countries*), €600 per year (non-ICSG member countries)." Free sample available at ICSG website (www.icsg.org).	ICSG
Concentrates	**CRU: Copper Concentrates Market Outlook** Includes an analysis of concentrate quality, including tables and charts indicating copper grades and specifications for payable and penalty elements.	Biannually (October, April) plus updates. Also access to CRU analysts.	CRU Concentrates

Concentrates - China	**Asian Metal** Offer price data on Chinese copper concentrates, including by region.	Concentrate must have minimum 20 percent copper. All prices are "ex works". Prices available for concentrate produced in Jiangxi, Inner Mongolia, Yunnan and Tibet.	Asian Metal
TC/RC - Japan	**Platts Metals Daily, Platts Metals Alert and the Platts internal database** Publish quarterly information on copper concentrate TC/RC. • treatment charges (CIF Japan, code: AAFGC00). • Refining charge (CIF Japan, code: MMCCJ00).	CIF Japan, quarterly.	Platts
TC/RC	CRU Copper Report Provides two estimates: • Mine/trader • Chinese smelter	Calendar monthly. Both are CIF "Asian port".	CRU
TC/RC - China	**Shanghai Metals Market (SMM) - China Copper Market report** Includes data on Chinese TC/RCs for imported copper concentrates. SMM publish an annual report, also weekly updates.	Also covers general market conditions.	SMM
TC - China	**Asian Metal website** Offers data on treatment charges for: • CIF China (30 percent copper) • FOB Chile (30 percent copper)	Daily information	Asian Metal
Cathode price premiums	**CRU Copper Report** Provides three estimates: • Europe – CIF NW European Port - Premium above the official LME cash settlement price for copper at	Monthly, reflecting deals done in the previous week. Europe means: CIF Rotterdam USA means: east coast delivered	CRU

	the time of contract confirmation • USA – East Coast delivered - Premium above the official first position COMEX price for copper at the time of contract confirmation • Far East – CIF Far Eastern Port - Premium above the official LME cash settlement price for copper at the time of contract confirmation	Far East means: CIF Shanghai	
Cathode price premiums	**Asian Metal website** Data available on: • China cathodes • Europe grade A cathodes • US cathodes	Data is all "ex works" (price at the place of refining). Asian Metal has information on regional Chinese prices, for Jiangxi, Shanghai, Zhejiang, Tianjin and Guangzhou.	Asian Metal
Cathode price premiums	**Platts Metals Daily** Estimates available for: • Europe – Grade A CIF Italy (weekly update) • Europe – Standard CIF Rotterdam: Weekly estimated $/mt premium for Russian standard grade copper on a CIF Rotterdam basis (weekly update) • Copper C&F China – Daily estimated premium for Grade A cathode, mostly of Chilean origin, over LME cash for C&F China copper business. (daily update) • Copper New York Dealer cathodes premium (US ¢/pound, weekly update) • In-Warehouse Singapore Premium – Daily estimated premium for Grade A material of all origin, in-warehouse Singapore (daily update)	Premiums estimates are usually a range.	Platts Metals Daily

Cathode price premiums	**Metal Bulletin Research – Base Metals Weekly Market Tracker** Provides information on premiums over spot copper prices for Shanghai, Singapore, Rotterdam and USA.	Publication also contains information on copper demand-supply balance and price forecasts. Free sample available at website.	Metal Bulletin Research
Penalties	**CRU**: **Copper Concentrates Market Outlook** Includes an analysis of concentrate quality, including tables and charts indicating copper grades and specifications for payable and penalty elements.	Biannually (October, April) plus updates. Also access to CRU analysts.	CRU Concentrates

Others checked: Asian Metal has no information on penalties. CRU Copper Raw Materials publication also contains information on sulphuric acid prices obtained by smelters (available at CRU Concentrates)

Gold

ITEM	COMPANY & PRODUCT	NOTES	SOURCE
Gold price per ounce – daily price	**London Bullion Market Association** Publishes the daily AM and PM London fix spot prices in USD. Data on website only for 2015.	No data export facility. Indicative (unofficial) prices in EUR and GBP also provided. Free publication.	LBMA
Gold price per ounce – daily price	**Wall Street Journal** Publishes daily spot price based on PM London fix. Price in USD. Refers to Handy and Harman base price for gold bar.	Data can be exported to MS Excel (XLS), CSV, XML, JSON. Free publication.	WSJ
Gold price per ounce – monthly average	**Western Australian Department of Mines and Petroleum** Provides schedule of average monthly spot prices (for use in royalty assessment forms).	Monthly average spot price, quoted in USD and AUD. Based on London fix. No daily data. As at April 2015, data ranged from 1996 to end-2014. Free publication.	WA Department of Mining and Petroleum
Gold price per ounce	**World Bank "Pink Sheets"** Publishes monthly average gold spot price, based on London PM fix.	Quoted in USD. Updated monthly. Data available from 1960 onwards. Free publication.	World Bank
Platts	**Platts Metals Daily** Third party information on precious metals (e.g. LBMA AM and PM gold price fix, COMEX spot prices).	Subscription publication. No unique data. Market commentary on price movements.	Platts

Others checked: Asian Metal – no gold information on website. Perth Mint – no pricing data on website. CRU – no precious metals data, but do have information on mines in operation and associated production cost data from 2010. Bloomberg and Thompson Reuters also offer commodity data terminals with real time spot market prices.

Iron Ore

PRODUCT	COMPANY & PRODUCT	NOTES	SOURCE
Iron ore – pricing database	**Minerals Valuation Service** Provides an analytical tool to compare price information for transactions of common iron ore products, drawing on Platts databases of transactions and research into related price components such as local transport costs.	MVS is owned by Platts.	Platts.com
Iron ore – market data and outlook	**UNCTAD Iron Ore Market Report** The 2015 issue of the Report covers developments in the iron ore and steel markets in 2014, an overview for 2015-2016, and as well as country, company and project information.	The market report is produced in conjunction with market data firm SNL.	UNCTAD
Iron ore – market data and outlook	**UNCTAD Iron Ore Statistics Database** Statistics available with a subscription. The data covers key importer and exporter countries, and dates back as far as 1970. The latest data is for October 2015, covering 119 countries and more than 150 ready-to-use analytical country groupings	The statistics are produced in conjunction with market data firm SNL.	UNCTAD
Iron Ore fines	**Argus Media – Steel Feedstocks Publication** Publication contains: • 58% Fe iron ore fines cfr Qingdao • 62% Fe iron ore fines cfr Qingdao (ICX) • 65% Fe iron ore fines cfr Qingdao	Delivery period is 2-6 weeks.	Argusmedia.com

Iron ore - fines	**The Steel Index** Offers reference prices for iron ore fines imported into China. Iron Ore Fines, Chinese Imports (CFR Tianjin Port): • 62% Fe (US$/dry tonne) • 58% Fe (US$/dry tonne) • 62% Fe, 2% Al (US$/dry tonne) • 63.5/63% Fe (US$/dry tonne) • 65% Fe (US$/dry tonne)	TSI is owned by Platts. Also offer a monthly Iron Ore Review publication, summarising price movements and market conditions. Sample available at TSI.	TSI
Iron Ore lumps	**Argus Media – Steel Feedstocks** Publication contains: • 63% Fe lump, cfr Qingdao • 63% Fe lump premium, cfr Qingdao	Delivery period is 2-6 weeks.	Argusmedia.com
Iron ore – key products	**Metal Bulletin Research - Steel Raw Materials Weekly Market Tracker** Contains information on several iron ore products: • Qingdao, China 62% Fines CFR $/tonne • Qingdao, China 65% Pellet CFR $/tonne • India 63.5% Fines FOB $/tonne • China Import Fines CFR $/tonne • China Import Pellet 65-66% CFR $/tonne • Domestic Average, China Concentrate Delivered $/tonne • Domestic Average, China Pellet Delivered	Updated weekly. Free sample available at website.	Metal Bulletin Research

Iron Ore lump and pellet premiums	**Platts – Metals market data package** Contains: • Estimate of Australian-origin lump price premium ($USD/dmt) for lumps sold to Chinese steel mills, published quarterly. • Estimate of Atlantic Basin (Brazil-origin) pellet price premium above iron ore fines ($USD/dmt)	Lump premium is in a dollar range, rather than a point estimate. Pellet premium estimates based on term contracts in sales to European steel mills. Based on 65 percent iron pellets. Premium is calculated over Brazil FOB fines product which has been adjusted up to 65 percent iron.	Platts
Iron Ore – adjustments for iron content and impurities	**The Steel Index** Offers price differentials for iron and impurities (average spot market values for Chinese imports). Available for both high-grade reference iron ore (in the range 60-66% Fe) and low-grade iron ore (in the range 55-60% Fe). • Iron (Per 1% Fe 60-64% Fe) • alumina (Per 1% Al up to 4% Al) • silica (Per 1% Si 4-9% Si)	Updated weekly.	TSI
Iron ore - miscellaneous	**Tex Report – daily report** Daily reports contain news on recent pricing and trade activities, including trade statistics for key iron ore markets. Contains price developments for the Chinese Iron Ore Price Index (CIOPI).	Yearly subscription cost up to $USD 1850. Access to reports back to 2004. Free trial available at website (www.texreport.co.jp)	Tex Report - Daily
Iron ore - miscellaneous	**Tex Report – Iron Ore Manual** Contains detailed discussion of iron ore markets, economic developments affecting those markets.	Publication cost is $US 210-220 depending on region.	Tex Report

Iron ore – geographical adjustments	**Platts – metals market data package** Contains 'netbacks' which adjust the IODEX index price to remove the cost of shipping from several origins. Denoted in $USD/DMT. Netbacks available for: • Australia (FOB port Hedland, Capesize vessel) • Brazil (FOB Tubarao, Capesize vessel) • East India (FOB Haldia/Paradip, Handymax vessel) • West India (FOB Mormugao, Handymax, Panamax vessels available) • South Africa (FOB Saldahna Bay, Capesize vessel)	More detail of the specifications available at Platts Methodology and Specifications Guide. Deducts dry bulk freight assessments from IODEX 62 percent Qingdao. Based on common ore moisture levels seen at the origin.	Platts
Iron ore – geographical adjustments	**The Steel Index – Daily Edition (email)** Contains estimates of freight cost, to allow CFR indexes to be adjusted back to FOB terms. Also provide an estimate of CFR Europe price for 62% Fe index. All estimates in US$/dry tonne. Provided for Brazil, Western Australia and India.	TSI is owned by Platts. Likely the same data as in Platts' metals market data package (see shipping data sources).	TSI
Iron ore - concentrates	**The Steel Index – Daily Edition (email)** Provides price for 65% Fe concentrate, ex-works, Shandong mine (RMB/dmt including VAT). Payment by D/A. Prices updated weekly.	TSI is owned by Platts. Sample available at TSI website.	TSI

Others checked: The Steel Index – no information on moisture price adjustments. Platts – no moisture price adjustments.

Thermal Coal

PRODUCT	COMPANY & PRODUCT	NOTES	SOURCE
Coal price information, market developments	**Argus Coal Daily International** Publication providing information on recent coal market developments, news and data. • API 2 and API 4 swap prices • Argus cif ARA (Amsterdam Rotterdam Antwerp) spot coal assessments • Richards Bay prices (South Africa) • Newcastle prices (Australia) • Asia assessments - cfr south China, cfr east India • Turkish assessments - cif Marmara, cif İskenderun • Russian assessments - fob Baltic ports, fob Vostochny	Americas covered in separate publication. Includes forward price estimates and derivatives.	Argus Media
Coal price information, market developments	**Argus Coal Daily Market Service** Provides coal market intelligence, pricing and analysis for the US coal markets. Argus assesses prices in the traditional spot markets for physical and over-the-counter (OTC) coal.	Includes 'deals done', freight rates, and price analysis	Argus Media
Coal price information, market developments	**Platts Coal Trader International** Includes Platts' price assessments for coal trading in the Atlantic and Pacific markets, including independent and editorially assessed thermal coal prices for the Chinese market.	Able to customise data provided Also have a database of information on power plants worldwide. Includes forward price estimates.	Platts

Standardised Coal Trading Agreement	**GlobalCOAL Standard Coal Trading Agreement (SCoTA)** Provides standardised set of terms and conditions for international coal sales and purchases.	Viewing the standardised contract is free, but using requires signing up to a product licencing agreement.	GlobalCOAL
Economic developments and analysis of coal markets	**IEA Medium Term Coal Market Report 2016** Major publication covering coal market developments in wider energy market context. Includes: • Trends in coal demand and supply • Developments in trading of coal products globally • Forecasts of demand and supply conditions • Analysis of investment in coal supply • Information on country trade in coal products	Authoritative source on coal market developments, trading and outlook (economic context to the trade in coal).	International Energy Agency